GeoVision inc
The Vision of Security

GV-Smart Box

User's Manual V1.0.2

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

SBV102-A

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Preface

Welcome to the GV-Smart Box User's Manual.

The GV-Smart Box has two models designed to meet different needs. This Manual is designed for the following models and firmware version:

Model	Firmware Version
GV-Smart Box V1	1.02
GV-Smart Box V3	1.02

Note: After you update the firmware to V1.02, it is required to restore GV-Smart Box to factory default settings. Refer to *5.2 Restoring to Factory Default Settings* for detailed instruction.

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Chapter 1 Introduction

The GV-Smart Box is a standalone device designed for object counting. Connecting to any analog camera, the GV-Smart Box counts the number of visitors, vehicles or faces. Having this data not only helps you keep an eye on your properties, but also helps identify peak traffic hours, providing valuable information for making strategic decisions.

Without installing any software, you can easily access the live images and counting data of the GV-Smart Box from anywhere in the world through a computer using the IE browser. You can also integrate the GV-Smart Box with GV applications such as GV-Web Report, GV-System and GV-Compact DVR to support extended functionality.

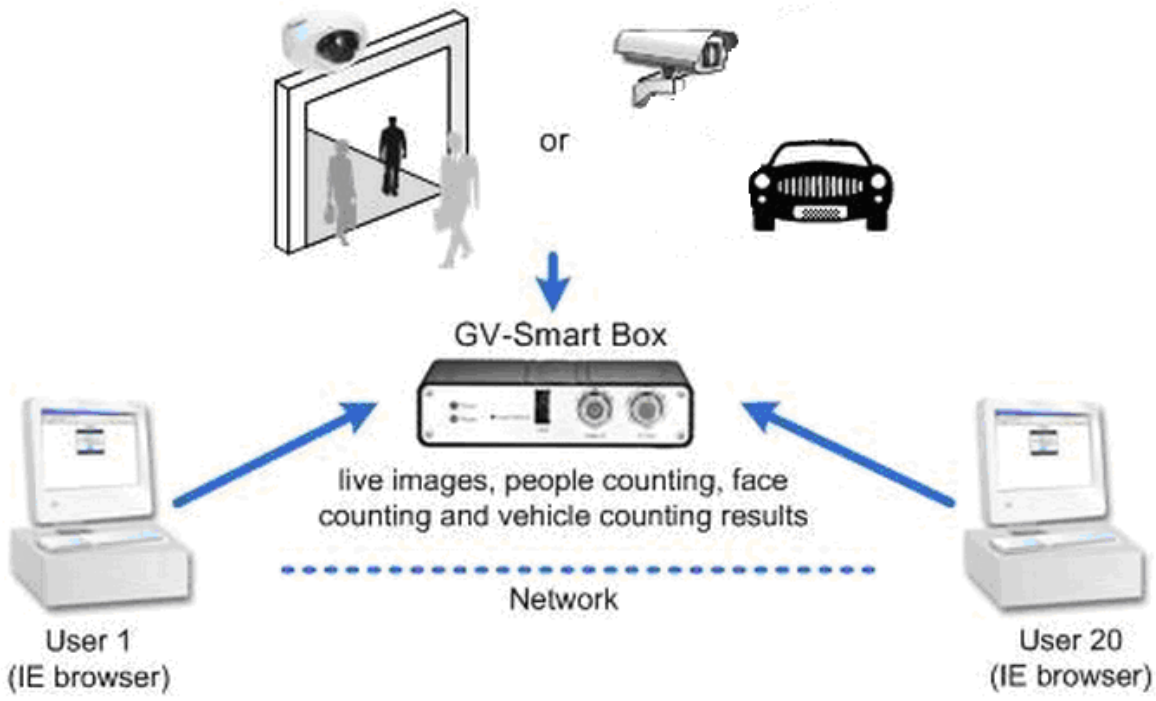


Figure 1-1

1.1 Key Features

- Counts the number of visitors
- Counts the number of faces
- Counts the number of vehicles
- Easily accessible Web-based interface to watch live views, query database, and customize settings
- Triggers alarm when faces covered with masks are detected
- Supports adjustment of video attributes
- Sets detection mode by schedule
- Supports UMTS and WiFi
- Integrates with GV-Web Report, GV-System or GV-Compact DVR
- Connects to VSM and sends alerts in the event of I/O trigger, video lost and network disconnection

1.2 Packing List

1. GV-Smart Box x 1
2. I/O Cable with RJ-45 Connector x 1
3. Power Adaptor x 1
4. Wall Hook x 1
5. Conical Anchor x 4
6. Screw x 4
7. GV-Smart Box Software DVD x 1
8. GV-Smart Box User's Manual on Software DVD

1.3 System Requirements

These are the requirements for the computer that displays the image or controls the GV-Smart Box.

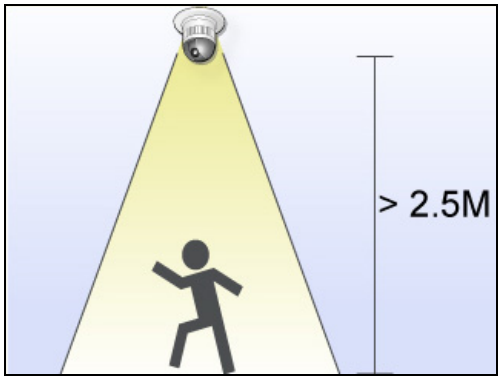
- **OS:** 32-bit Windows XP / Vista / 7 / Server 2008; 64-bit Windows 7 / Server 2008
- **Web Browser:** Internet Explorer 7.0 or later

1.4 Optimal Camera Installation

To get the optimal results for the People Counting and Face Counter function, follow the instructions below to install the camera.

People Counting:

- The camera should be installed to the ceiling at least 2.5 meters above the floor. The camera should face straight down.



- Position the camera in the middle of the two defined detection zones so that the system can easily identify people when they pass through.

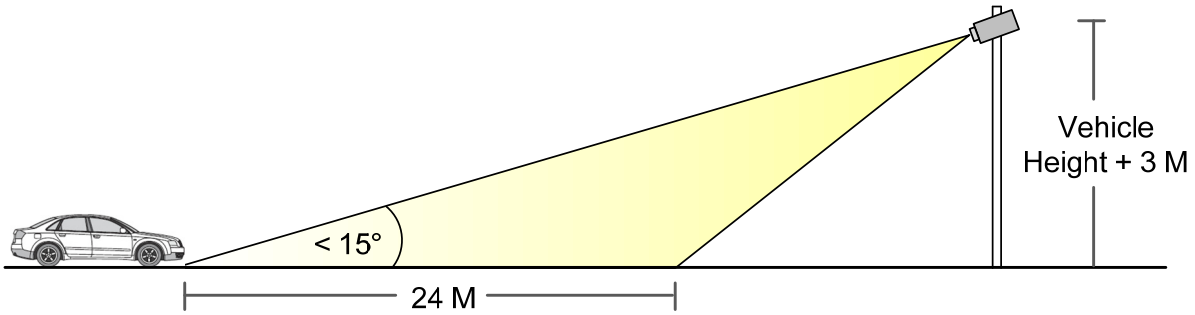
Positioning the camera in the middle of two defined detection zones.

- Don’t install the camera in such an angle that the size of people varies dramatically in the camera view.
- Make sure that no doors or any items are ever crossing the middle line where the camera is installed. If a door is opened towards the camera, place the camera further away from the door.
- Avoid placing the camera where it can be subjected to direct sunlight or reflections. If sharp shadow edges are visible in the camera view, the count accuracy might be less than what it normally is.
- If the camera has the Auto Gain Control (AGC) and Auto White Balance (AWB) features, disable them.

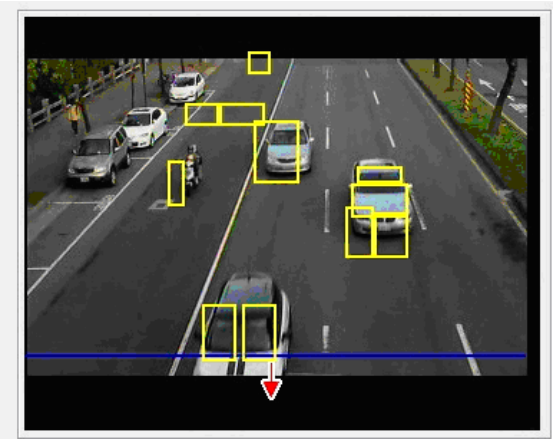
Vehicle Counting:

- The camera should be installed 3 meters above the top of the vehicles. The camera should be pointing toward the front of the vehicles at an angle of 15 degrees or less.

  [Installation]



  [Counting Image]



Note: The above value is determined by using a vehicle of 15-meter length; the suggested visible distance is 24 meters or more.

- Avoid placing the camera where it can be subjected to direct sunlight or reflections. If sharp shadow edges are visible in the camera view, the count accuracy might be less than what it normally is.
- If the camera has the Auto Gain Control (AGC) and Auto White Balance (AWB) features, disable them.

Face Counter:

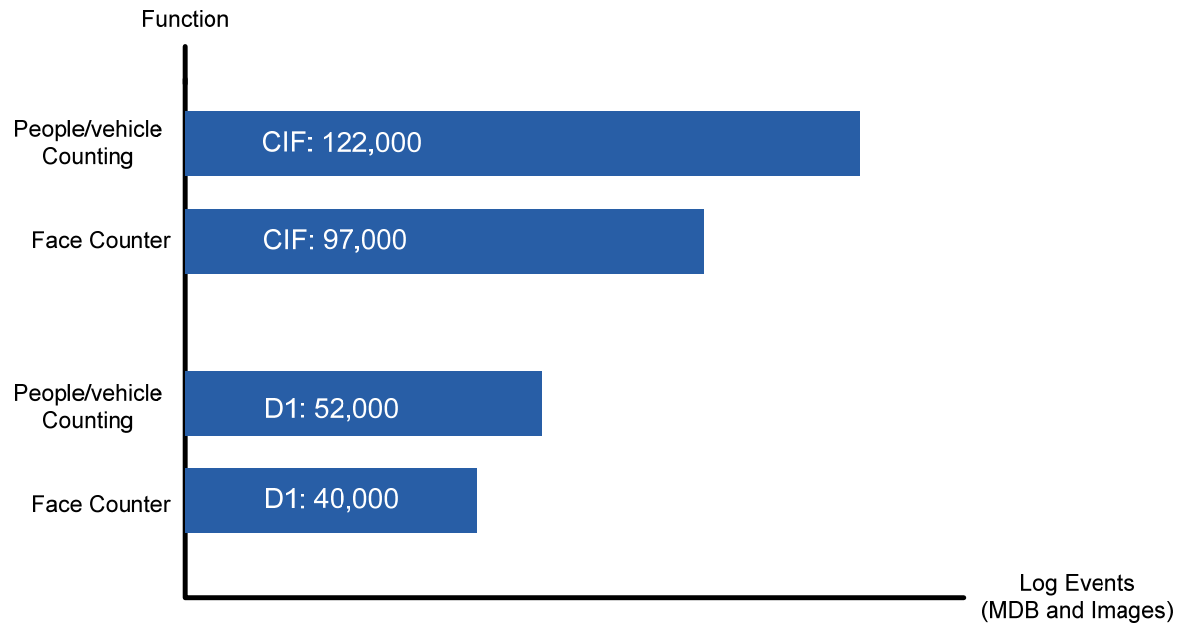
- Install the camera inside an entrance pointing horizontally outward. The face counting function is designed to detect front-view faces only.
- Avoid installing the camera where it can be subjected to direct sunlight or reflections. The lighting of the entrance where you set the camera should be sufficient but not be too bright or dark. Light should be distributed evenly across faces without too much light coming from one side. If sharp shadow edges are visible in the camera view, the count accuracy might be less than what it normally is.

1.5 Recognition Limitations on Face Counter

- **Recognition Angle:** Front face only (side face cannot be recognized)
- **Face with Mask Filter:** Not recommended for people with long beard or mustache
- **Recognition Area Range:** The area of the detected face must take up 10% to 50% of camera view

1.6 Reference for Recording Capacity of a 1GB SD Card

For Face Counter function, a SD card with 1GB capacity can store approximately 40,000 log events (both MDB and images) at D1 resolution, and 97,000 log events at CIF resolution. For People or Vehicle Counting function, a SD card with 1GB capacity can store approximately 52,000 log events at D1 resolution, and 122,000 log events at CIF resolution.



1.7 Options

Optional GV devices and applications can expand your GV-Smart Box's capabilities and versatility. Contact your dealer for more information. For details on connecting to optional devices, see Chapter 7.

GV-WiFi USB Adapter	The WiFi USB Adapter is designed to connect the GV-Smart Box to the wireless network.
GV-Relay V2	Working with the GV-Relay V2, the GV-Smart Box is capable of driving the loads of relay outputs over 5 volts.
GV-Web Report	Through the Web browser, the GV-Web Report keeps track of and analyzes the people, vehicle and face counting results from multiple GV-Smart Boxes. The integration brings you the following benefits: • Live view display from GV-Smart Boxes • Data analysis of people, vehicle and face counts Compatible version: V2.0 or later
GV-System	GeoVision Analog and Digital Video Recording Software. In most of documents, the GV-System also refers to **Multicam System**, **GV-NVR System** and **GV-Hybrid DVR System** at the same time. The integration brings you the following benefits: • Live view display from GV-Smart Boxes • People or vehicle counting results overlaid on the live images Compatible version: V8.34 or later
GV-Compact DVR	The GV-Compact DVR is a mobile video recorder. The integration brings you the following benefit. • People or vehicle counting results overlaid on the live images Compatible version: V1.03 or later

1.8 Overview

This section identifies the various components of the GV-Smart Box.

1.8.1 Front View

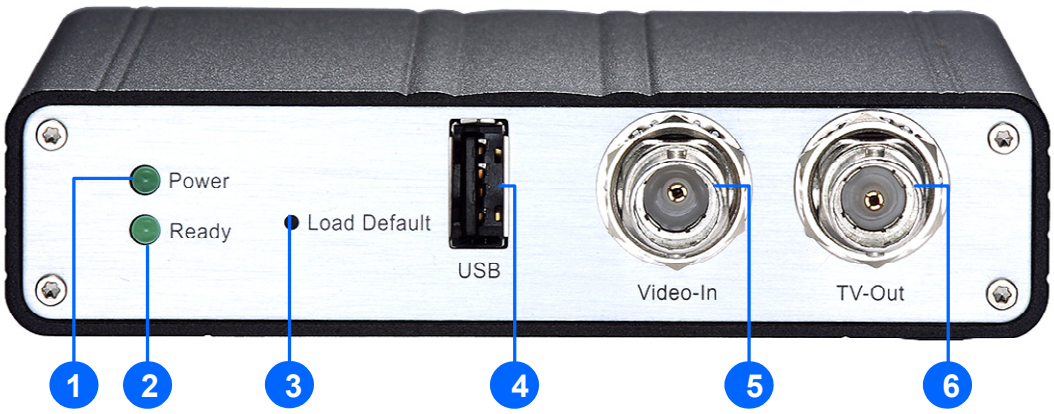
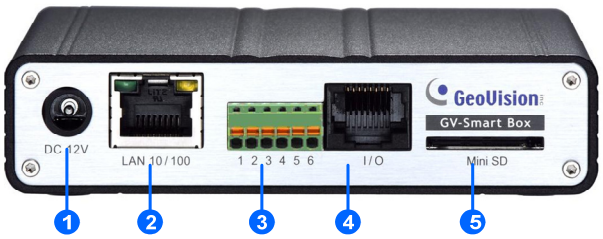


Figure 1-2

No.	Name	Function
1	Power LED	Indicates the power is supplied.
2	Ready LED	Indicates the unit is ready for connection.
3	Default Button	It resets all configurations to their factory settings. See *5.2 Restoring to Factory Default Settings*.
4	USB Port	Connects a UMTS modem or a WiFi adapter. See *4.5.3 UMTS* or *4.5.2 Wireless-Client Mode*.
5	Video In	Connects a camera.
6	TV-Out	Connects an external monitor to output live videos and people counting and face counting results immediately. It is useful when you cannot access the GV-Smart Box through the network. For details on setting the TV-Out function, see “TV OUTPUT Port Setting” in *4.1.1 Video Settings*.

1.8.2 Rear View

GV-Smart Box V1



GV-Smart Box V3

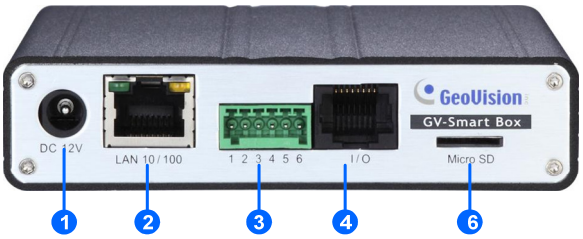


Figure 1-3

No.	Name	Function
1	DC 12V	Connects the supplied power adaptor.
2	Ethernet Port	Connects a 10/100 Ethernet network.
3	Terminal Block	Not functional.
4	I/O Port	A port for digital inputs and relay outputs. Insert the supplied **I/O Cable with RJ-45 Connector** to this port. See *Chapter 6 The I/O Terminal Block*. **Note:** Wiegand interface is NOT functional now.
5	Mini SD Card Slot	Inserts a Mini Secure Digital (SD) card. The Mini SD card is used for storing log data and images.
6	Micro SD Card Slot	Inserts a Micro Secure Digital (SD) card. The Micro SD card is used for storing log data and images.

Chapter 2 Getting Started

This section provides basic information to get the GV-Smart Box working on the network.

2.1 Installing on a Network

These instructions describe the basic connections to install the GV-Smart Box on the network.

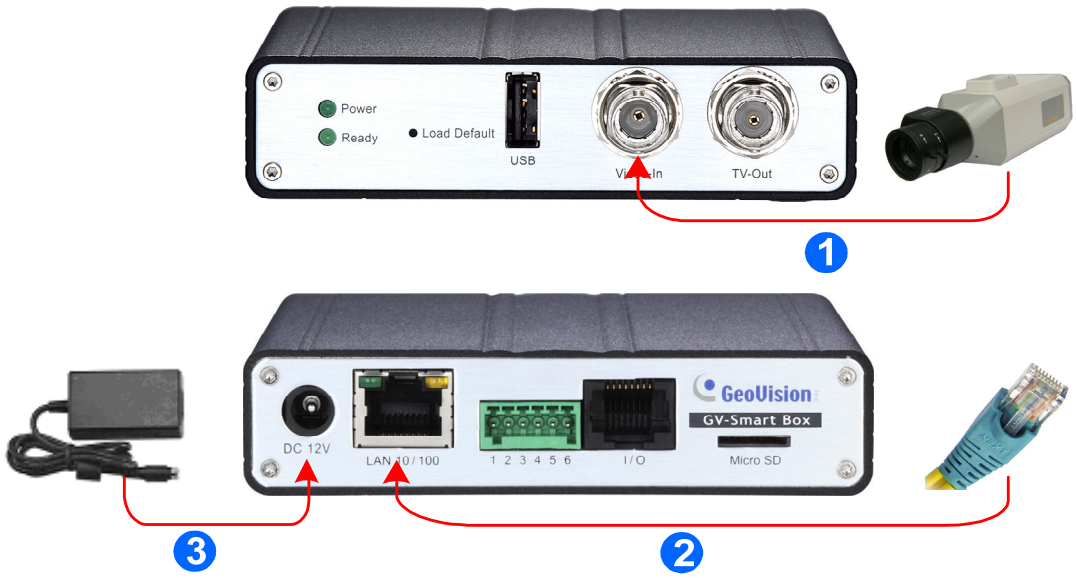


Figure 2-1

1. Connect the video output of your camera to the BNC video input.
2. Connect the hub or switch on the LAN to the unit's 10/100 Mbps Ethernet port.
3. Connect the power supply to the power input.
4. Wait until both Power and Ready LEDs are on. Then you can set the IP address for the unit.

2.2 Assigning an IP Address

Designed for use on an Ethernet network, the GV-Smart Box must be assigned an IP address to make it accessible.

Note: The GV-Smart Box has a default address of **192.168.0.230**. The computer used to set the IP address must be under the same IP and subnet sequence assigned to the unit.

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1. Open your Web browser, and type the default IP address http://192.168.0.230/.
2. In both Login and Password fields, type the default value **admin**. Click **Apply**.
3. In the left menu, select **Network** and then **LAN** to begin the network settings.

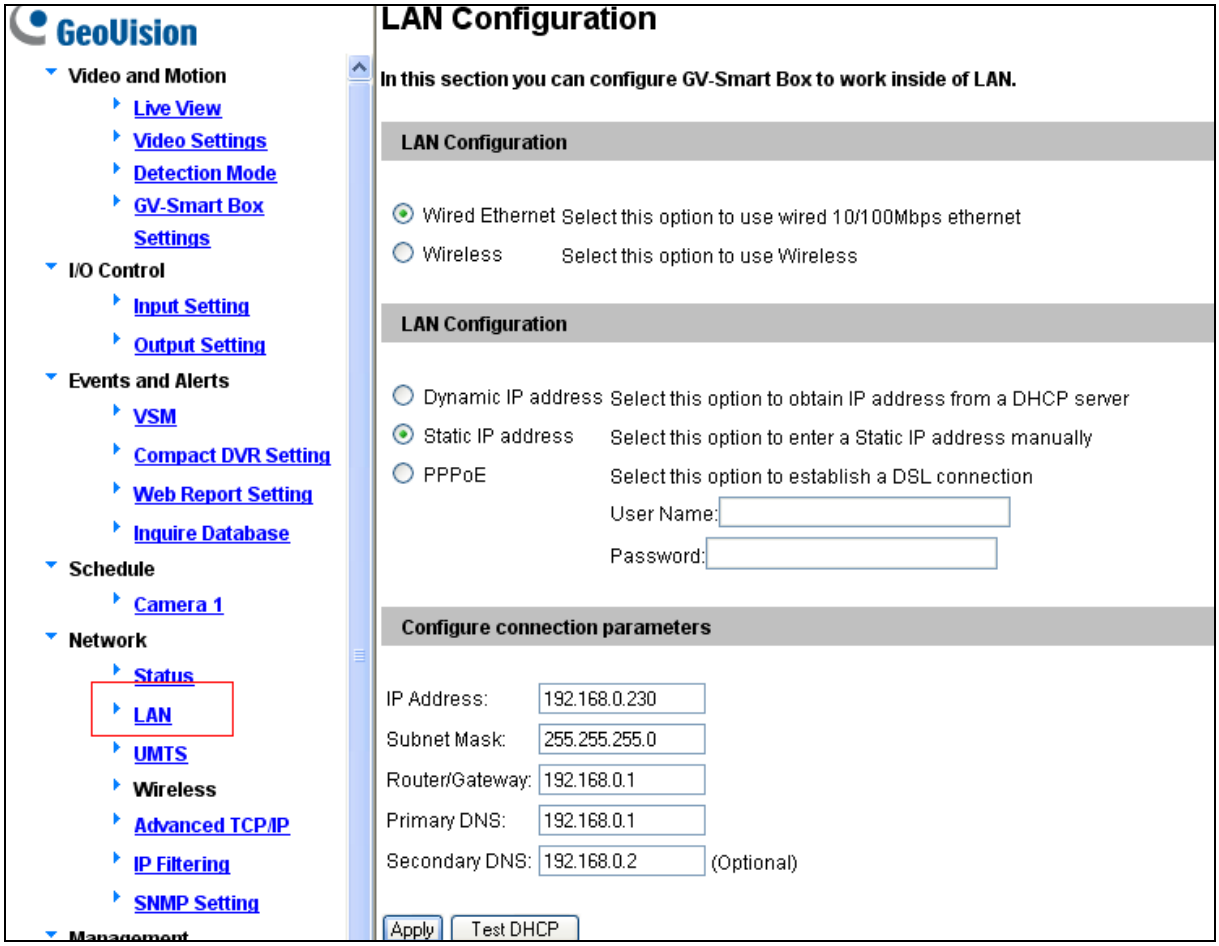


Figure 2-2

4. Select **Static IP address**. Type IP Address, Subnet Mask, Router/Gateway, Primary DNS and Secondary DNS in the **Configure connection parameters** section.

5. Click **Apply**. The GV-Smart Box is accessible by entering the assigned IP address on the Web browser.

Important:

1. **Dynamic IP Address**, **PPPoE** and **UMTS** should only be enabled if you know which IP address the GV-Smart Box will get from the DHCP server or ISP. Otherwise you must use the Dynamic DNS service to obtain a domain name linked to the GV-Smart Box's changing IP address first.

   For details on Dynamic IP Address and PPPoE settings, see *4.5.3 Advanced TCP/IP.*

2. If **Dynamic IP Address**, **PPPoE** or **UMTS** is enabled and you cannot access the unit, you may have to reset it to the factory default and then perform the network settings again.

   To restore the factory settings, see the **Default** button in *1.8.1 Front View*.

2.3 Configuring Basic Features

Once the camera is properly installed, these important features can be configured using the browser-based configuration page and are discussed in the following sections in this manual:

- **Date and time adjustment:** see *4.6.1 Date and Time Setting*.
- **Login and privileged passwords:** see *4.6.3 User Account*.
- **Network gateway:** see *4.5 Network*.
- **Video format, resolution and frame rate:** see *4.1.1 Video Settings*.

Chapter 3 Accessing the GV-Smart Box

Two types of users are allowed to log in the GV-Smart Box: Administrator and Guest. The Administrator has unrestricted access to all system configurations, while the Guest has the access to live view and network status configurations only.

Note: To access the Web interface of GV-Smart Box, make sure the Web browser you use is Internet Explorer 7 or later.

3.1 Accessing Your Surveillance Images

Once installed, your GV-Smart Box is accessible on the network. Follow these steps to access your surveillance images, people counting, and face counting results:

1. Start the Internet Explorer browser.
2. Enter the IP address or domain name of the GV-Smart Box in the **Location/Address** field of your browser.

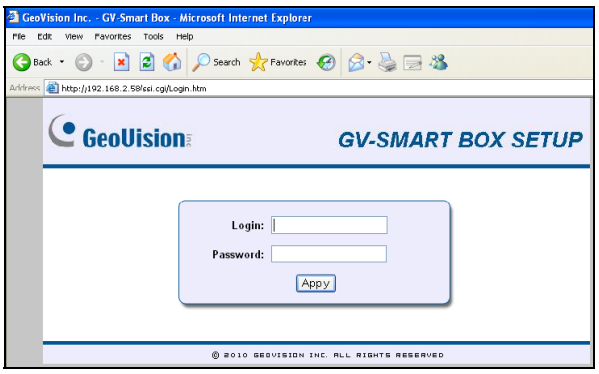


Figure 3-1

3. Enter a login name and password.
   - The default login name and password for Administrator are **admin**.
   - The default login name and password for Guest are **guest**.
4. A video image, similar to the example in Figure 3-2, is now displayed in your browser.

Note: To enable the updating of images in Internet Explorer, you must set your browser to allow ActiveX Controls and perform a one-time installation of GeoVision's ActiveX component onto your computer.

3.2 Functions Featured on the Main Page

This section introduces the features of the Live View window and Network Status on the main page. The two features are accessible by both Administrator and Guest.

Main Page of Guest Mode

▼ **Video and Motion**

► **Live View**

▼ **Network**

► **Status**

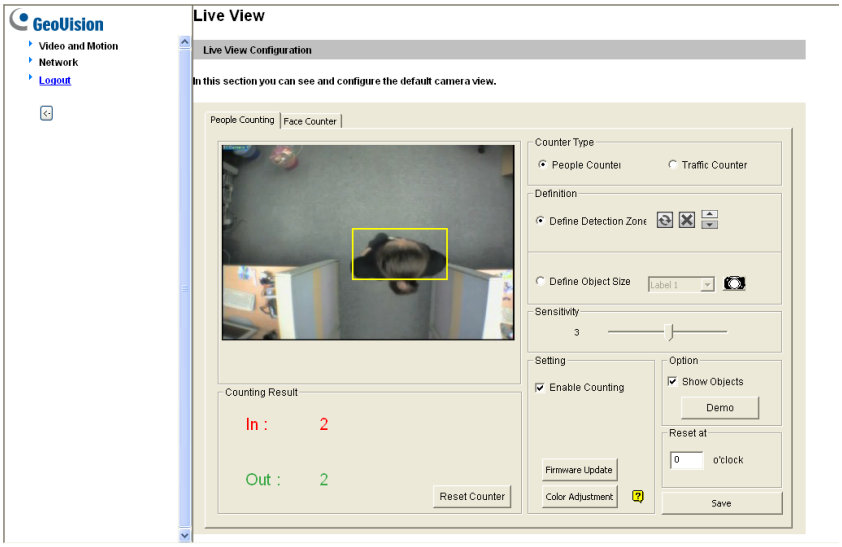


Figure 3-2

3.2.1 People Counting and Face Counter

In the Live View configuration window, the People Counting and Face Counter functions are available for configuration. These two functions cannot be enabled simultaneously. You can only enable either People Counting or Face Counter at one time. The configuration of these two functions is accessible by both Administrator and Guest.

Note: To get the optimal people, vehicle or face counting results, follow the instructions to install the camera. See *1.4 Optimal Camera Installation*. . For details on the limitations of Face Counter function, see *1.5 Recognition Limitations on Face Counter*.

3.2.1.1 People or Vehicle Counting

To configure the GV-Smart Box to count people or vehicles, click the **People Counting** tab.

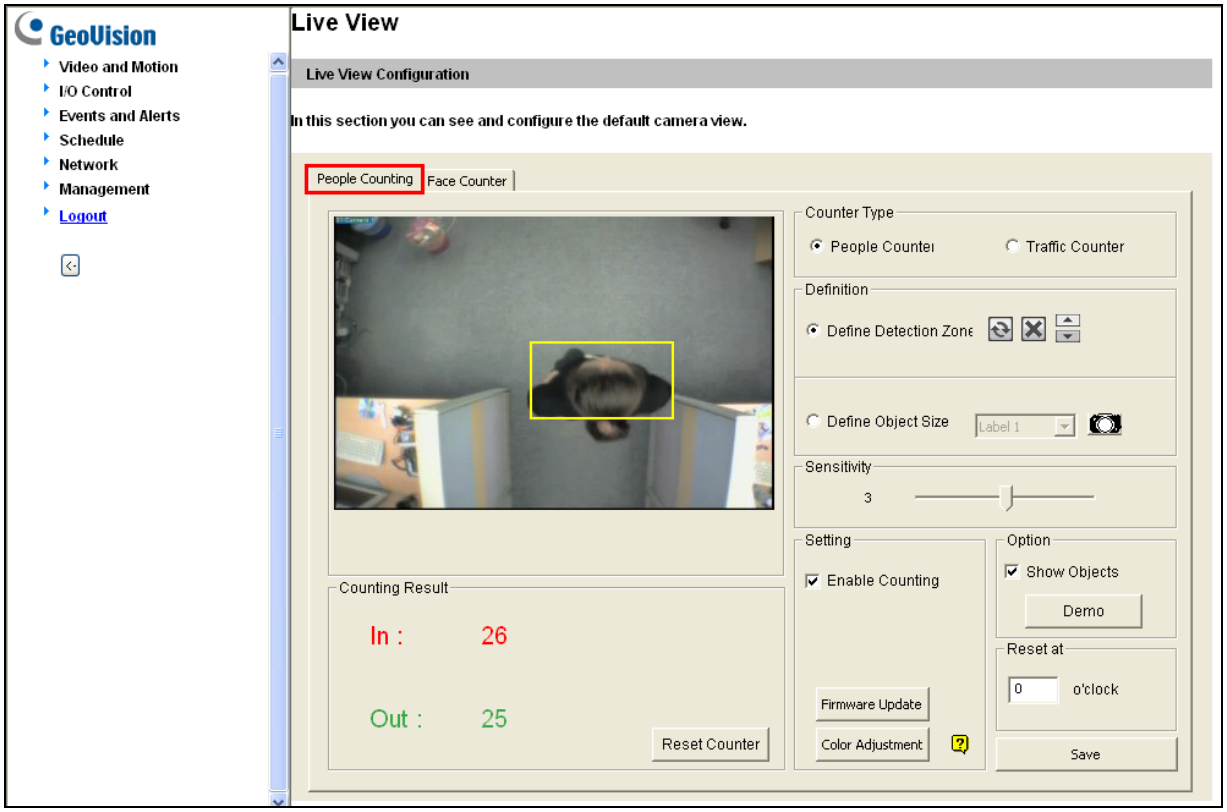


Figure 3-3

1. In the Counter section, select **People Counter** to count people or select **Traffic Counter** to count vehicles.

2. In the **Definition** section, there are two options:

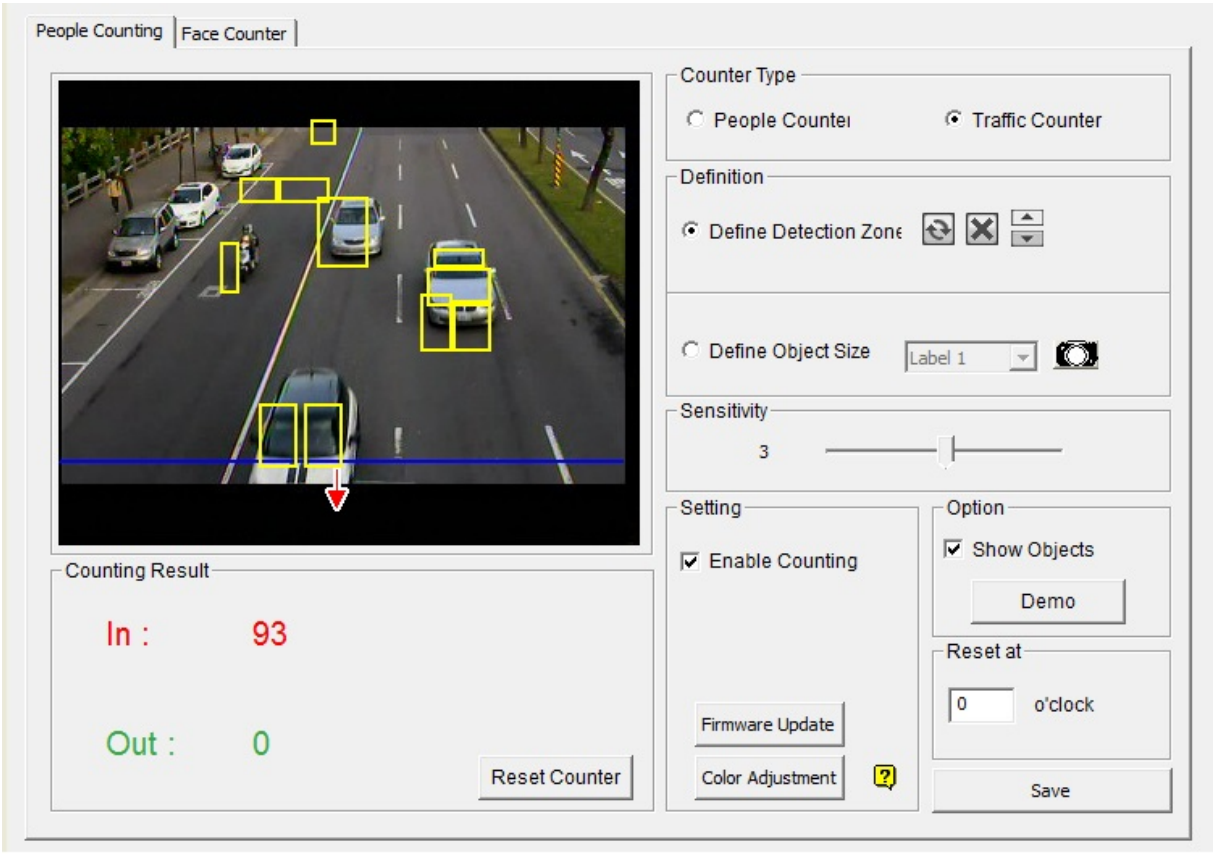
   - **Define Detection Zone:** Use the mouse to draw lines on the camera image to define the boundaries of the detection zones.

	This button is used to switch the direction and scheme of counting. Click this button to add green or red arrows or both. The **red arrow** indicates an in direction. When an object appears in the camera view and moves toward the direction of the red arrow, it will be counted as 1 in. The **green arrow** indicates an out direction. When an object appears in the camera view and moves toward the direction of the green arrow, it will be counted as 1 out.
	Click this button to switch to another line and then use button to delete or the button to edit.
	Click this button to delete the line.

   - **Define Object Size:** Use the mouse to outline a region matching the normal size of people or a vehicle on the video image depending on the type of counter you selected. If the video is playing, first click the **Snapshot** button to freeze the image before defining.

Note: When **People Counter** is selected, the person has to completely move across the detection line to be counted. When **Traffic Counter** is selected, the vehicle only has to reach the edge of the detection line to be counted.

Tip: For **Traffic Counter**,



1. Draw the detection line near the bottom of the video image as shown in the above figure.
2. You can define up to six object sizes for different types of vehicles. You can query the counted number of different vehicle sizes you defined when connecting to GV-Web Report.
3. When the vehicle image is smaller than the smallest defined size, it will not be counted.
4. When the vehicle image is between the two defined sizes, it will be counted and categorized as the smaller vehicle size.

3. In the **Sensitivity** section, adjust the detection sensitivity by moving the slider. The higher the value, the more sensitive the system to motion. The default value is 4.
4. In the **Setting** section, select **Enable Counting**.
5. In the **Reset at** section, type a reset counting time between 0 and 23. For example, if you type 23, the number of **In** and **Out** in the **Counting Result** section will become zero at 23 o'clock daily. The daily counting data will be saved in the Mini / Micro SD card. The GV-Smart Box then starts counting In and Out numbers again.

6. Click the **Save** button to start the people or vehicle counting function.

Other Configurations available on this Web page:

[Setting]

- **Firmware Update:** Upgrades the firmware of GV-Smart Box over LAN. See *5.1.1 Upgrading Firmware over LAN.*
- **Color Adjustment:** Adjusts the brightness, contrast, saturation and hue of the video.

[Option]

- **Show Objects:** If you enable **Show Objects**, the defined masked regions will be displayed on the video image for your reference.

  ⊙ **Demo:** Illustrates the optimal distance between the camera and object. The option is only for people counting.

[Counting Result] Presents the number of people in or out.

- **Reset Counter:** Resets the number of **In** and **Out** to zero immediately. The counting data will be saved in the Mini / Micro SD card. The GV-Smart Box then starts counting **In** and **Out** numbers again.

3.2.1.2 Face Counter

To configure the GV-Smart Box to count detected faces, click the **Face Counter** tab.

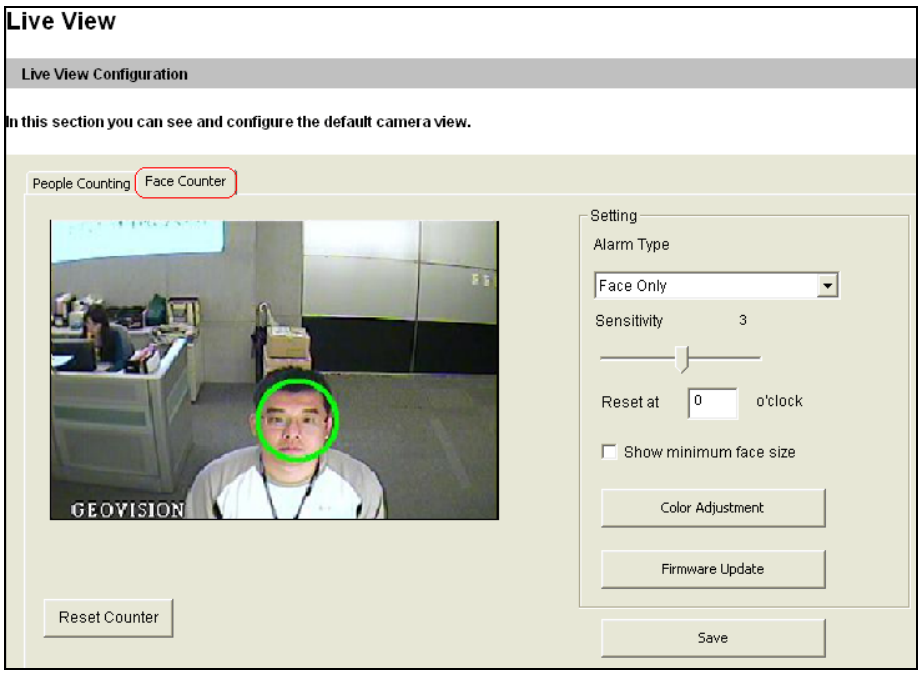


Figure 3-4

1. In the **Setting** section, the following options are available:

   - **Alarm Type:** three detection alarm types are available for Face Counter:

Alarm Type	Face with Mask Filter	Face with Inverse Mask Filter	Face Only
Function	Count faces without masks covered	Count faces without masks covered	Count faces with or without masks covered
Triggered by	Motion detection (default) or I/O trigger	I/O trigger	Motion detection (default) or I/O trigger
I/O Applications	Optional	Necessary	Optional
Output Trigger	A face is counted	No face is counted	A face is counted

   - ⊙ **Face with Mask Filter:** The option can detect the face with a mask; only when the mask is removed from the face, the face will be counted. The option can also work with I/O devices. If I/O devices are installed, the system will start counting faces when an input device is triggered; when a face is counted within the

specified time, the output device will be triggered. For example, after a door sensor (input) is triggered, the door lock (output) will only open if a face is counted by the system within 30 seconds.

To use this function with I/O devices, see *4.2 I/O Control* to install devices first. To set up I/O trigger settings, see *4.1.2 Detection Mode*.

- ⊙ **Face with Inverse Mask Filter:** The option must work with I/O devices. After the input device is triggered, if the system is unable to count the face within the specified time, the output device will be triggered. For example, after an ATM card is inserted into an ATM machine, a security alert will be sent if GV-Smart Box is unable to detect the face within 30 seconds.
  To install I/O devices, see *4.2 I/O Control;* to set up I/O trigger settings, see *4.1.2 Detection Mode*.
- ⊙ **Face Only:** When a face (with or without a mask) is detected, it will be counted and a green circle will appear on the face image. The option can also work with I/O devices. If I/O devices are installed, the system will start counting faces when an input device is triggered; when a face is counted within the specified time, the output device will be triggered.
  To install I/O devices, see *4.2 I/O Control;* to set up I/O trigger settings, see *4.1.2 Detection Mode*.

Note: The Output operations for **Face Mask with Filter** and **Face with Inverse Mask Filter** are in reverse. When the sysetm detects a face without any mask covered, the ouput will be triggered in **Face Mask with Filter**; but in **Face with Inverse Mask Filter** the ouput is triggered when the system is unable to detect a full face.

- ■ **Sensitivity:** Adjust the detection sensitivity by moving the slider. The higher the value, the more sensitive the system to motion. The default value is 4.
- ■ **Reset at:** Type a reset counting time between 0 and 23. For example, if you type 23, the **Viewer** and **Total** numbers displayed on the bottom of the live view window will reset to 0 at 23 o'clock daily. The daily face counting data will be saved in the Mini / Micro SD card.
- ■ **Show minimum face size:** Shows the minimum face size that the GV-Smart Box is able to detect. For optimal results, position the camera so that the area of the detected face takes up 10% to 50% of camera view.

2. Click the **Save** button to start the Face Counter function.

Other Configurations available on the page:

[Setting]

- **Firmware Update:** Upgrades the firmware of GV-Smart Box over LAN. See *5.1.1 Upgrading System Firmware over LAN.*
- **Color Adjustment:** Adjusts the brightness, contrast, saturation and hue of the video.

[Reset Counter] Resets the number of **Viewer** and **Total** on the Live View window immediately. The counting data will be saved in the Mini / Micro SD card. The **Viewer** presents the current number of detected faces on the image. The **Total** presents the total number of detected faces. Up to 8 faces can be detected on the image at the same time.

3.2.2 Network Status

To view the network status, in the left menu, click **Network** and select **Status**.

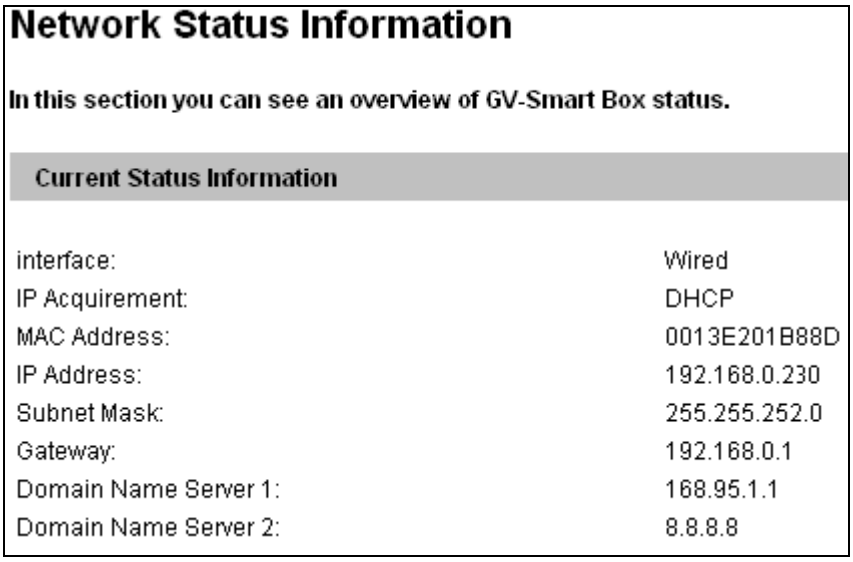

Network Status Information
In this section you can see an overview of GV-Smart Box status.
Current Status Information
interface: Wired
IP Acquirement: DHCP
MAC Address: 0013E201B88D
IP Address: 192.168.0.230
Subnet Mask: 255.255.252.0
Gateway: 192.168.0.1
Domain Name Server 1: 168.95.1.1
Domain Name Server 2: 8.8.8.8

Figure 3-5

Chapter 4 Administrator Mode

The Administrator can access the system configuration via the Internet. Five categories of configurations are included in the system configuration: **Video and Motion**, **I/O Control**, **Events and Alerts**, **Network**, and **Management**.

- **Video and Motion**
  - Live View
  - Video Settings
  - Detection Mode
  - GV-Smart Box Settings
- **I/O Control**
  - Input Setting
  - Output Setting
- **Events and Alerts**
  - VSM
  - Compact DVR Setting
  - Web Report Setting
  - Inquire Database
- **Schedule**
  - Camera 1
- **Network**
  - Status
  - LAN
  - UMTS
  - Wireless
  - Advanced TCP/IP
  - IP Filtering
  - SNMP Setting
- **Management**
  - Date and Time
  - Storage Settings
  - User Account
  - Log Information
  - Tools
- **Logout**

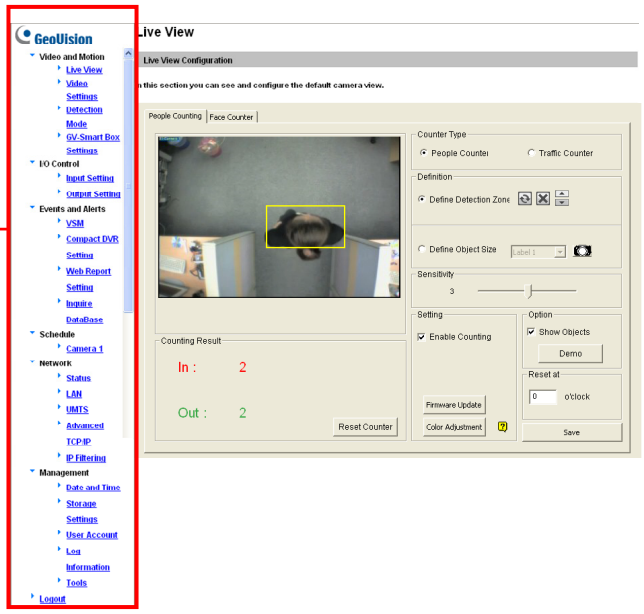


Figure 4-1

4.1 Video and Motion

This section introduces Video Settings and GV-Smart Box Settings that allow you to customize People Counting, Vehicle Counting and Face Counting functions.

4.1.1 Video Settings

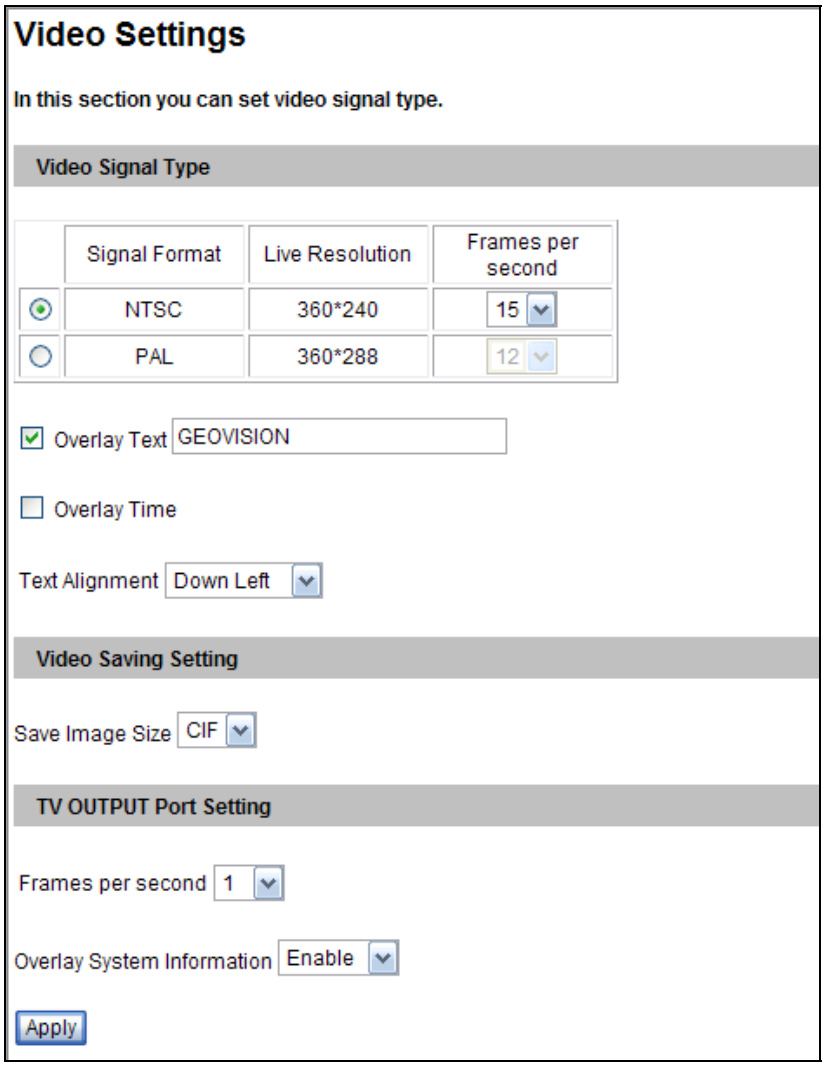


Figure 4-2

[Video Signal Type] The GV-Smart Box supports both NTSC and PAL video signals. Select either **NTSC** or **PAL**.

The live resolution is set to be 360 x 240 (NTSC) or 360 x 288 (PAL). There are several frame rates available.

Frame Rate	**NTSC**	1, 3, 5, 7, 10, 15
	PAL	1, 3, 5, 8, 12

- **Overlay Text:** Enter a text message that will be overlaid on live and captured images, e.g. company name.
- **Overlay Time:** Select this option to display the time stamp on live and captured images.
- **Text Alignment:** Select a position for the text and time stamp to appear on live and captured images, e.g. down left, down right, top left or top right.

[Video Saving Setting]

- **Save Image Size:** Select the size of the captured image to be saved to the Mini / Micro SD card. There are two options: CIF and D1.

[TV Output Port Setting] The GV-Smart Box allows the direct connection of an external monitor to output live images and counting results immediately. When the unit is installed at a place where the network is not accessible, the TV-Out port can be used for camera adjustment to ensure the image of people or face is captured properly.

- **Frames per second:** Select a frame rate of 1, 5 or 10 for the TV output.
- **Overlay System Information:** Select **Enable** to overlay time, date, detection mode and counting results on the live images of TV output.

4.1.2 Detection Mode

The Detection Mode section allows you to set the GV-Smart Box to begin counting upon motion detection or input trigger. By default the GV-Smart Box starts counting upon motion detection. When I/O devices are installed with the GV-Smart Box, advanced applications will be developed. For example, when face counting fails, an alarm may be activated for warning (in Face with Inverse Mask Filter function), or a door may not be unlocked (in Face with Mask Filter function). To have the I/O application, you must set up the I/O devices on the GV-Smart Box first by referring to *4.2 I/O Control.*

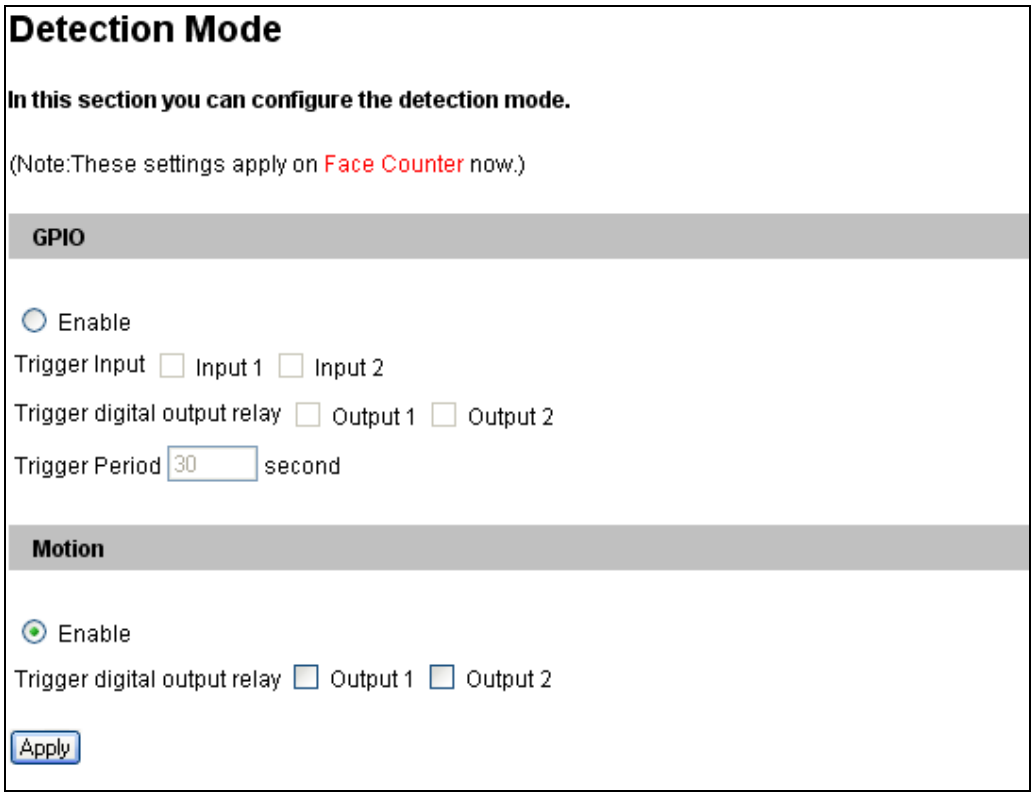


Figure 4-3

[GPIO]

Begins face counting upon input trigger.

- **Trigger Input:** Select Input 1 and/or Input 2, and the GV-Smart Box will begin face counting after the input device is triggered. If both options are selected, face counting will begin after either input device is triggered.
- **Trigger digital output relay:** Select Output 1 and/or Output 2 to trigger an output device if a face (in Face with Mask Filter function) or no face (in Face with Inverse Mask Filter function) is detected after the specified time below.
- **Trigger Period:** The GV-Smart Box will attempt to count faces for the number of seconds

specified. Take the Face with Inverse Mask Filter function as example, if you set the interval to 30 seconds, the output device will be triggered if the system cannot count any faces within 30 seconds after the input device is triggered.

Begins people/vehicle counting upon input trigger.

- **Trigger Input:** Select Input 1 and/or Input 2, and the GV-Smart Box will begin people/vehicle counting after the input device is triggered. If both options are selected, people/vehicle counting will begin after either input device is triggered.
- **Trigger digital output relay:** Select Output 1 and/or Output 2 to trigger an output device if people/vehicle is counted after the time interval specified below.
- **Trigger Period:** The GV-Smart Box will attempt to count people/vehicle for the number of seconds specified.

[Motion] Begins people, vehicle or face counting upon motion detection.

- **Trigger digital output relay:** Select Output 1 and/or Output 2 to trigger an output device after people, vehicle or face is counted.

Note: The motion-triggered counting option cannot work with the **Face with Inverse Mask Filter** option in Face Counter. See *3.2.1.2 Face Counter*.

4.1.3 GV-Smart Box Settings

The GV-Smart Box can connect to the GV-System. For details on the connection, see *7.2 Connecting to GV-System*.

Once you have connected the GV-Smart Box to the GV-System, the live images of the GV-Smart Box will be transmitted to the GV-System, and the people or vehicle counting results can be overlaid on the live images as well.

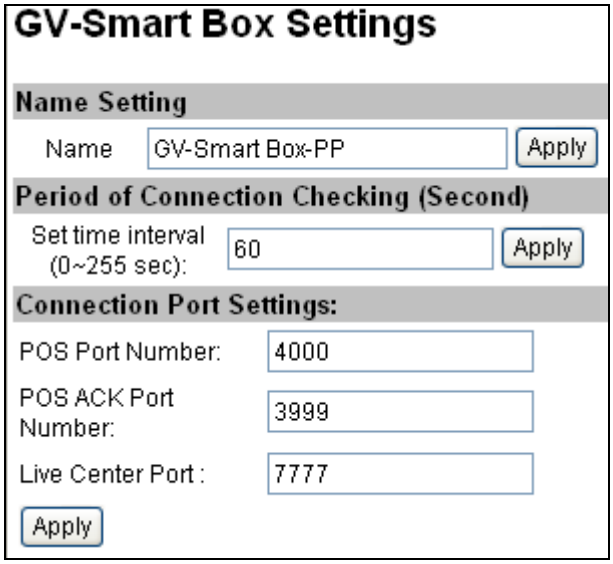


Figure 4-4

[Name Setting] Type a descriptive name for the GV-Smart Box.

[Period of Connection Checking] Set the time interval in seconds between each reconnection attempt.

[Connection Port Settings] Both **POS Port** and **POS ACK Port** are used for transmitting the counting results to the GV-System. The default port numbers are 4000 and 3999 respectively.

The **Live Center Port** is used for accessing the Web interface of GV-Smart Box on the browser. When you want to access Web interfaces of multiple units of GV-Smart Box on the same computer, set different Live Center Ports for each GV-Smart Box; otherwise you cannot access more than one GV-Smart Box at the same time.

4.2 I/O Control

The I/O terminal block on the rear panel of GV-Smart Box provides the interface for digital inputs and relay outputs. For details on the I/O terminal block, see *Chapter 6.*

4.2.1 Input Setting

The GV-Smart Box can connect up to 2 input devices, e.g. sensors.

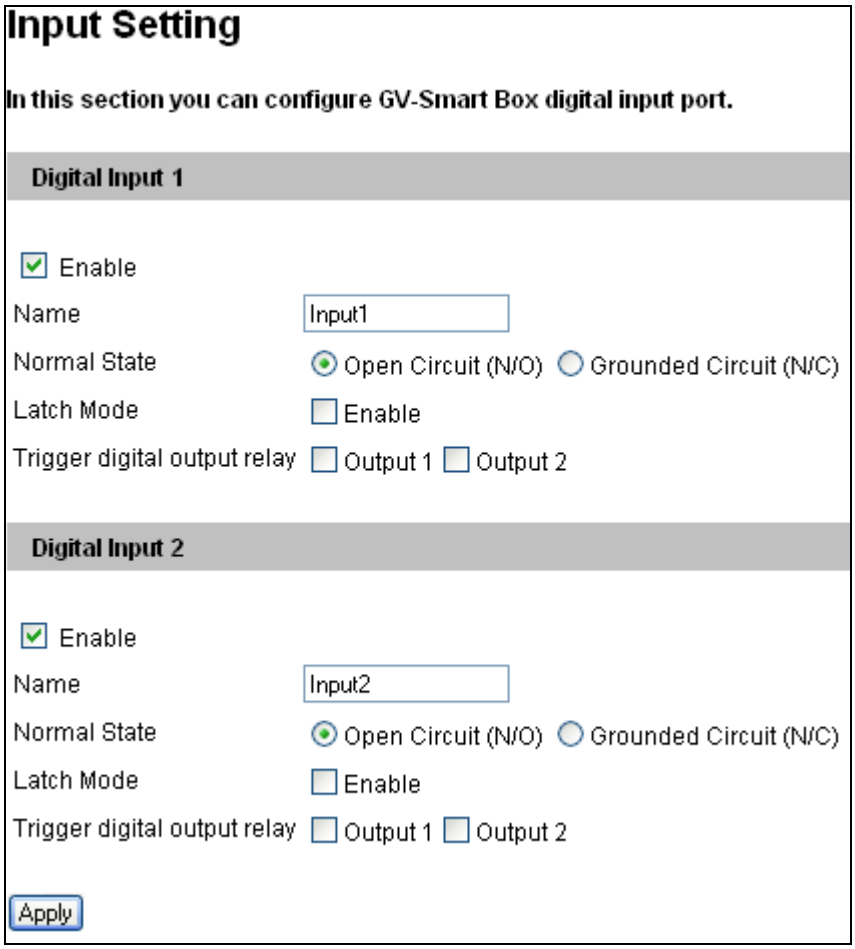


Figure 4-5

- **Name:** Type a descriptive name for the input device.
- **Normal State:** Set up the input state to trigger actions by selecting **Open Circuit (N/O)** or **Grounded Circuit (N/C)**.
- **Latch Mode:** Enable this option to have a momentary output alarm.
- **Trigger digital output relay:** Select the output(s) to be triggered after the input is activated.

4.2.2 Output Setting

The GV-Smart Box can connect up to 2 output devices, e.g. alarms.

There are six output signals available: N/O (Open Circuit), N/C (Grounded Circuit), N/O Toggle, N/C Toggle, N/O Pulse and N/C Pulse. Choose the one that best suits the device you are using. For **Toggle** output type, the output continues to be triggered until a new input trigger ends the output. For **Pulse** output type, the output is triggered for the amount of time you specify in the **Trigger Pulse Mode for x seconds** field.

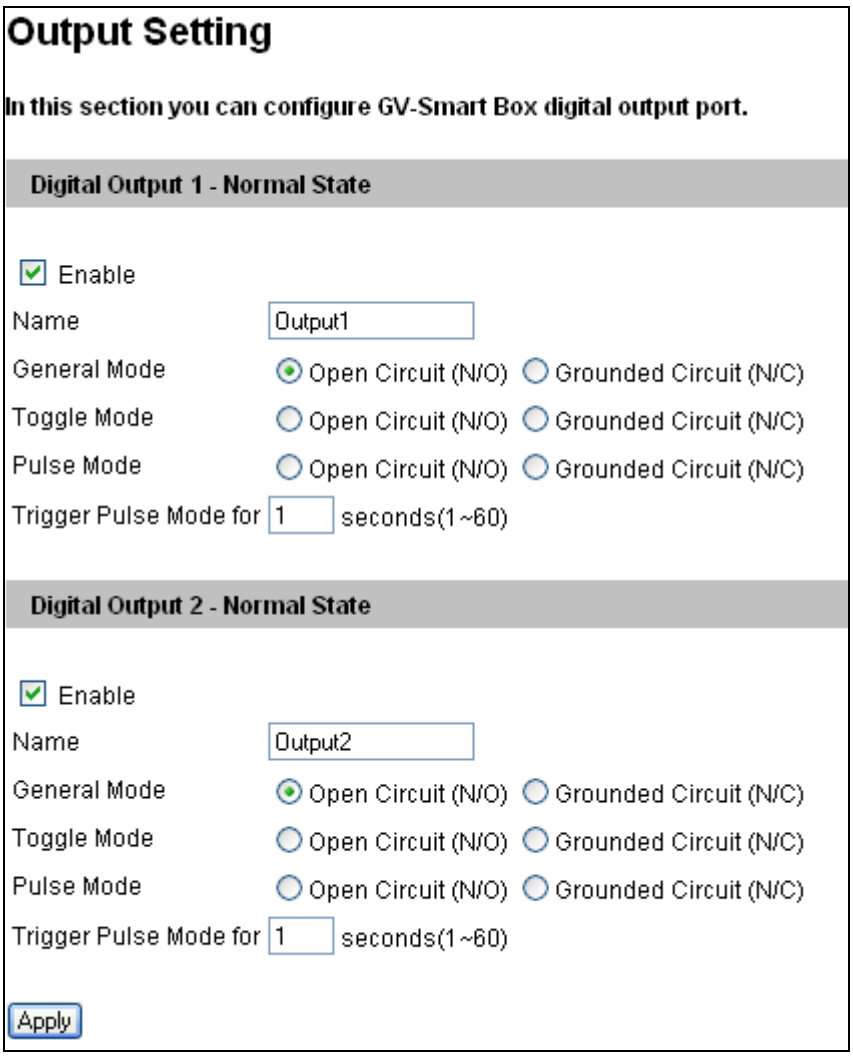


Figure 4-6

4.3 Events & Alerts

4.3.1 VSM (Vital Sign Monitor)

The GV-Smart Box can connect to the central monitoring station VSM and VSM can receive text alerts in the event of video lost, I/O trigger and network disconnection. To monitor through VSM, you must already have a subscriber account on VSM. One GV-Smart Box can connect to up to 2 VSM centers for central monitoring.

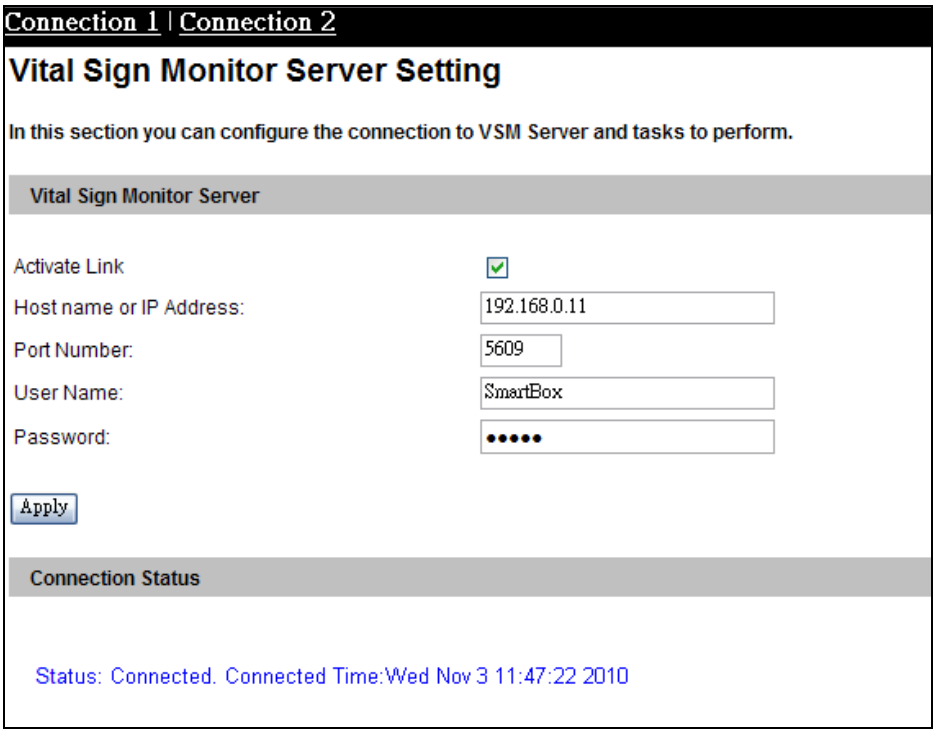


Figure 4-7

To set up VSM:

1. Select **Activate Link** to enable the function.
2. Type the **Host Name or IP address** of the VSM server.
3. Type a **port number** or keep the default value 5609.
4. Type a valid **User Name** and **Password** to log into VSM.
5. Click **Apply**.

The Connection Status should display “Connected” and the connected time.

4.3.2 Compact DVR Setting

The GV-Smart Box can connect to the GV-Compact DVR. For details on the connection, see *7.3 Connecting to GV-Compact DVR*.

Type the IP address, port number, user name and password of the GV-Compact DVR. Select one channel of the GV-Compact DVR to overlay the people or vehicle counting results on the channel. The default port number is 10000.

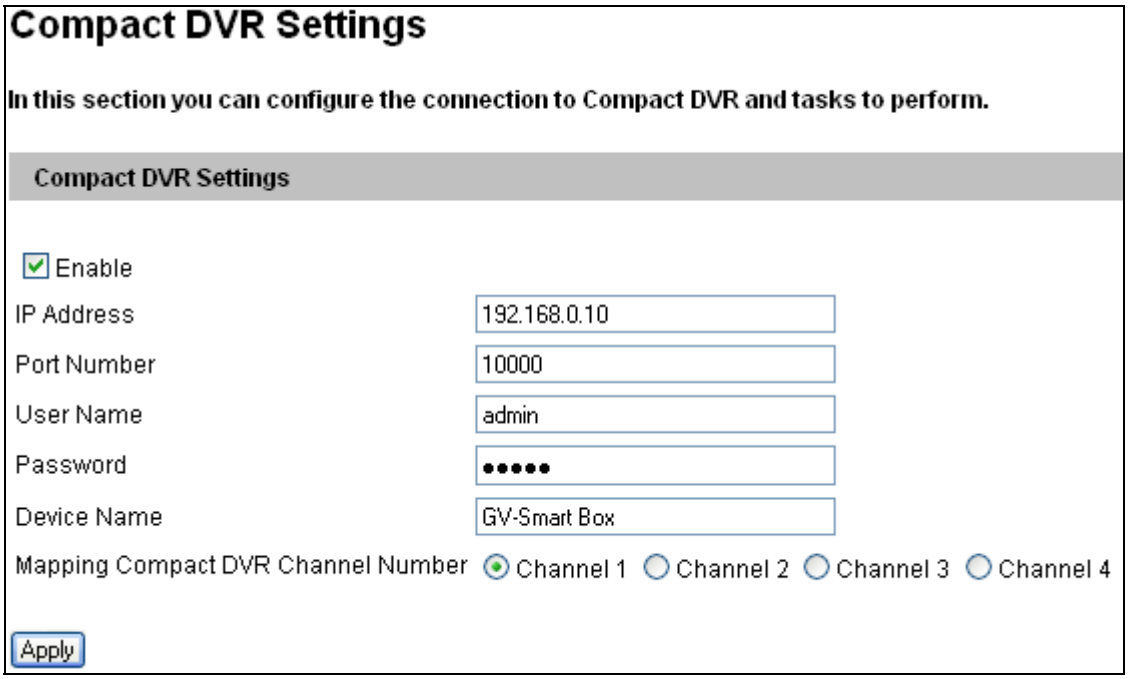


Figure 4-8

4.3.3 Web Report Setting

The GV-Smart Box can connect to the GV-Web Report. For details on the connection, see *7.1 Connecting to GV-Web Report*.

Type the host name or IP address, port number, user name and password of the GV-Web Report and click **Apply**. The default port number is 30000.

You can click **Export all** button if the network was interrupted to resend all data to the GV-Web Report.

The **Connection Status** is shown on the bottom of the page to show whether GV-Web Report is connected and the time of connection.

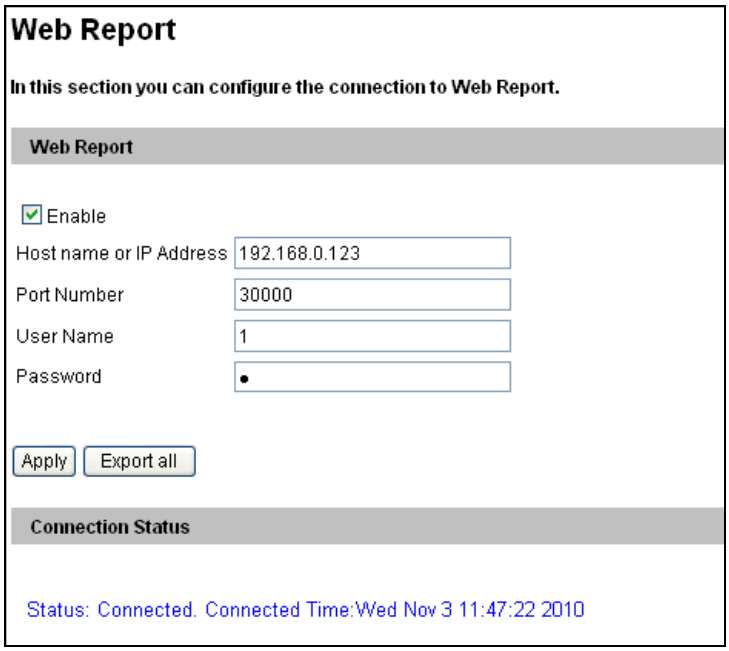


Figure 4-9

4.3.4 Database Inquiry

You can query people counting, vehicle counting and face counting data from the Mini / Micro SD card. In addition, the people or vehicle counting results can be presented in statistical diagrams.

Note: The log data is recorded in the Mini / Micro SD card. Make sure you have inserted the Mini / Micro SD card into the GV-Smart Box before you query the data.

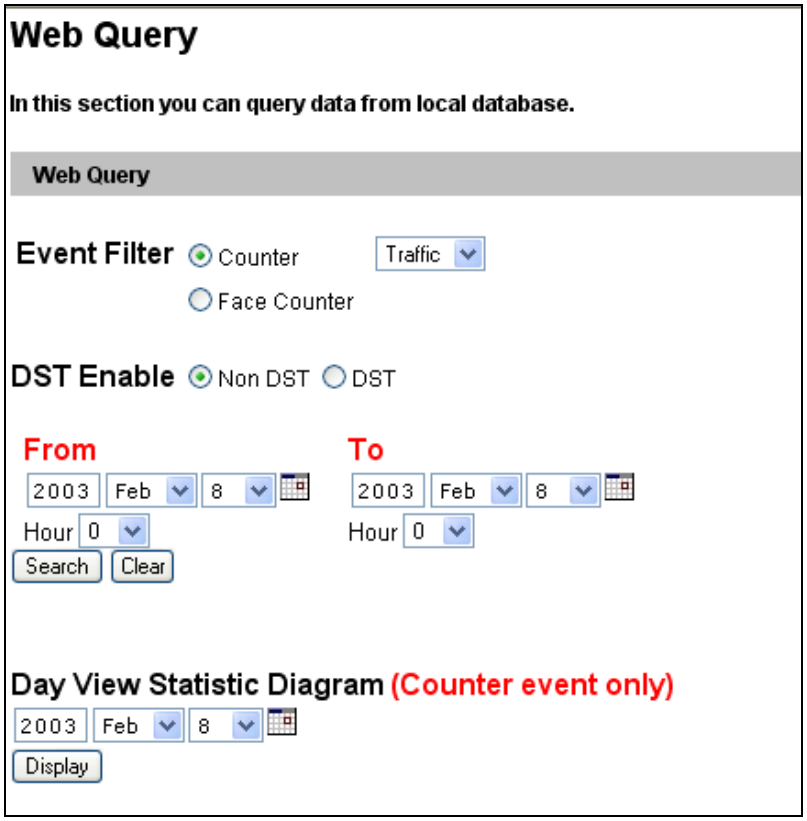


Figure 4-10

Querying Data

To query log data of People or Vehicle Counting:

1. Select **Counter** from the **Event Filter**, and select **People** for people counting or **Traffic** for vehicle counting.
2. If you want to query log events recorded during the Daylight Saving Time period, select **DST** from the **DST Enable**; otherwise, select **Non DST**.
3. Select time period and click **Search**. This log event list appears.

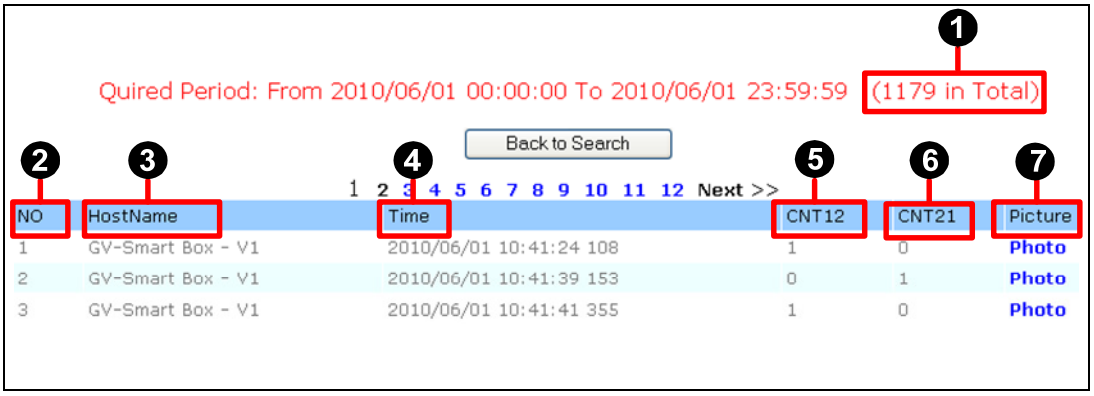


Figure 4-11

Up to 100 log events can be listed on each page. You can click **Photo** to see the snapshot of the log event.

No.	Description
1	Display the total number of people or vehicles counted within the queried period.
2	Display numbers of events.
3	Display the host name of the GV-Smart Box.
4	Display the time of the event.
5	Display the number of people or vehicles in.
6	Display the number of people or vehicles out.
7	Click to display the snapshot of the event.

Note: If you are using GV-Web Report, you can query the counted number of up to 6 types of vehicle sizes you defined. To define the vehicle size, see Step 2 in *3.2.1.1 People or Vehicle Counting*.

To query log data of Face Counter:

1. Select **Face Counter** from the **Event Filter**.
2. If you want to query log events recorded during the Daylight Saving Time period, select **DST** from the **DST Enable**; otherwise, select **Non DST**.
3. Select time period and click **Search**. This log event list appears.

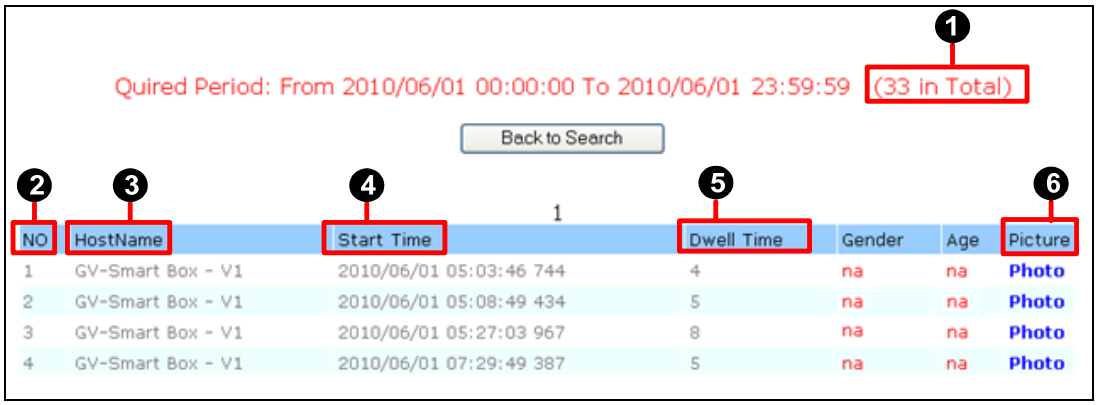

1
Quired Period: From 2010/06/01 00:00:00 To 2010/06/01 23:59:59 (33 in Total)
Back to Search
2
3
4
5
6
1
NO HostName Start Time Dwell Time Gender Age Picture
1 GV-Smart Box - V1 2010/06/01 05:03:46 744 4 na na Photo
2 GV-Smart Box - V1 2010/06/01 05:08:49 434 5 na na Photo
3 GV-Smart Box - V1 2010/06/01 05:27:03 967 8 na na Photo
4 GV-Smart Box - V1 2010/06/01 07:29:49 387 5 na na Photo

Figure 4-12

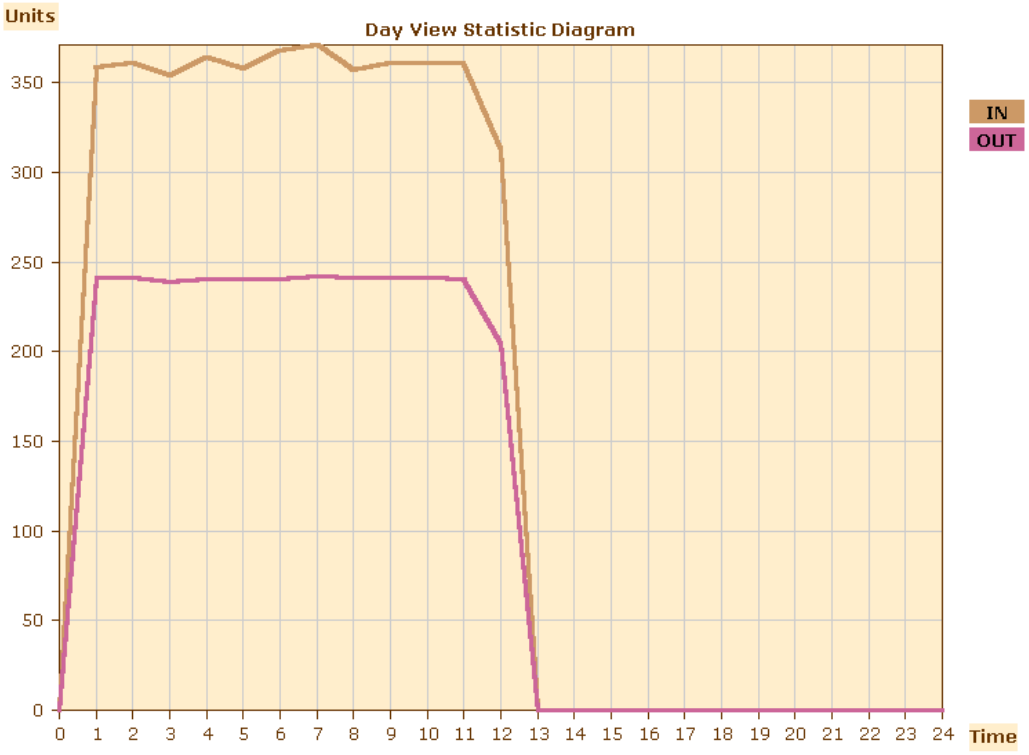
Up to 100 log events can be listed on each page. You can click **Photo** to see the snapshot of the log event.

No.	Description
1	Display the total number of the detected faces within the queried period.
2	Display numbers of events.
3	Display the host name of the GV-Smart Box.
4	Display the start time of the event.
5	Display the recognition time spent on the event.
6	Click to display the snapshot of the event.

Producing Statistic Diagrams

The GV-Smart Box can present the people or vehicle counting results in a diagram. You can only query the people or vehicle counting log events on a specified date. Select the desired date and click **Display**. The following diagram appears.

In the following statistical diagram, you can easily see the peak time of people counting results. The hourly numbers of people in and out are illustrated both in the diagram and the table.



2010/06/01, Total IN 4288 / OUT 2851

Time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
In	359	361	354	364	358	368	371	357	361	361	361	313	0	0	0	0	0	0	0	0	0	0	0	0
Out	241	241	239	240	240	240	242	241	241	241	240	205	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4-13

4.4 Schedule

The **Schedule** section allows you to set a schedule to begin counting upon motion or I/O trigger.

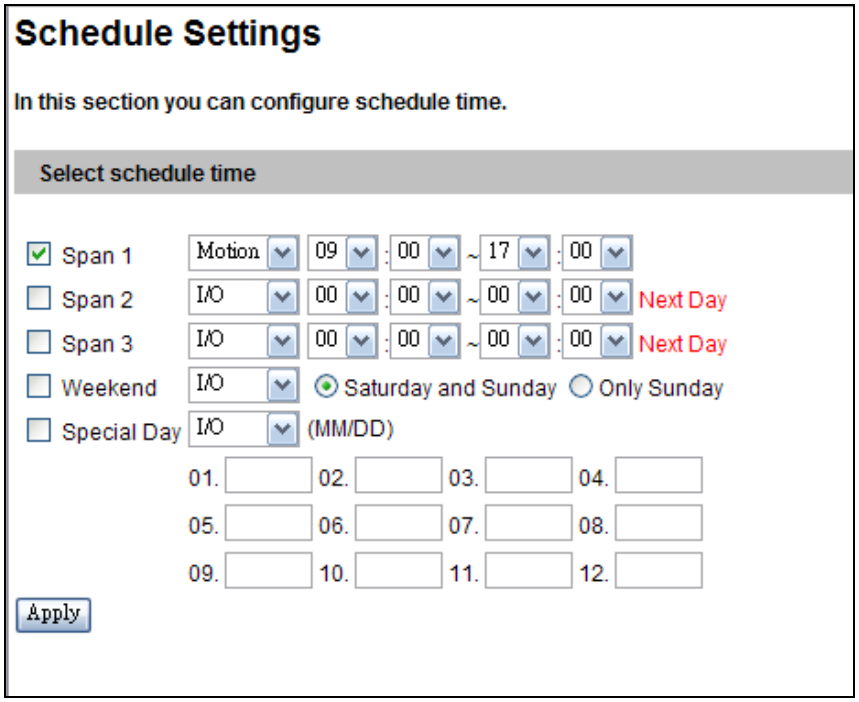


Figure 4-14

To set up a schedule:

1. Select **Span 1** and select to detect upon **Motion** or **I/O**.
2. Specify a time period. The period that you specify is effective from Monday through Sunday.
3. To have the GV-Smart Box function all day on the weekend, select **Weekend** and define whether the weekend includes **Sunday & Saturday** or **Sunday Only**.
4. To enable GV-Smart Box on a specific date, select **Special Day**, select the detection mode and type the date.

Note: The detection mode selected in the Schedule section has priority over the settings in the Detection Mode section. See *4.1.2 Detection Mode* for details.

4.5 Network

The **Network** section includes some basic but important network configurations that enable the GV-Smart Box to be connected to a TCP/IP network.

4.5.1 LAN

According to your network environment, select among Static IP, DHCP, PPPoE and UMTS.

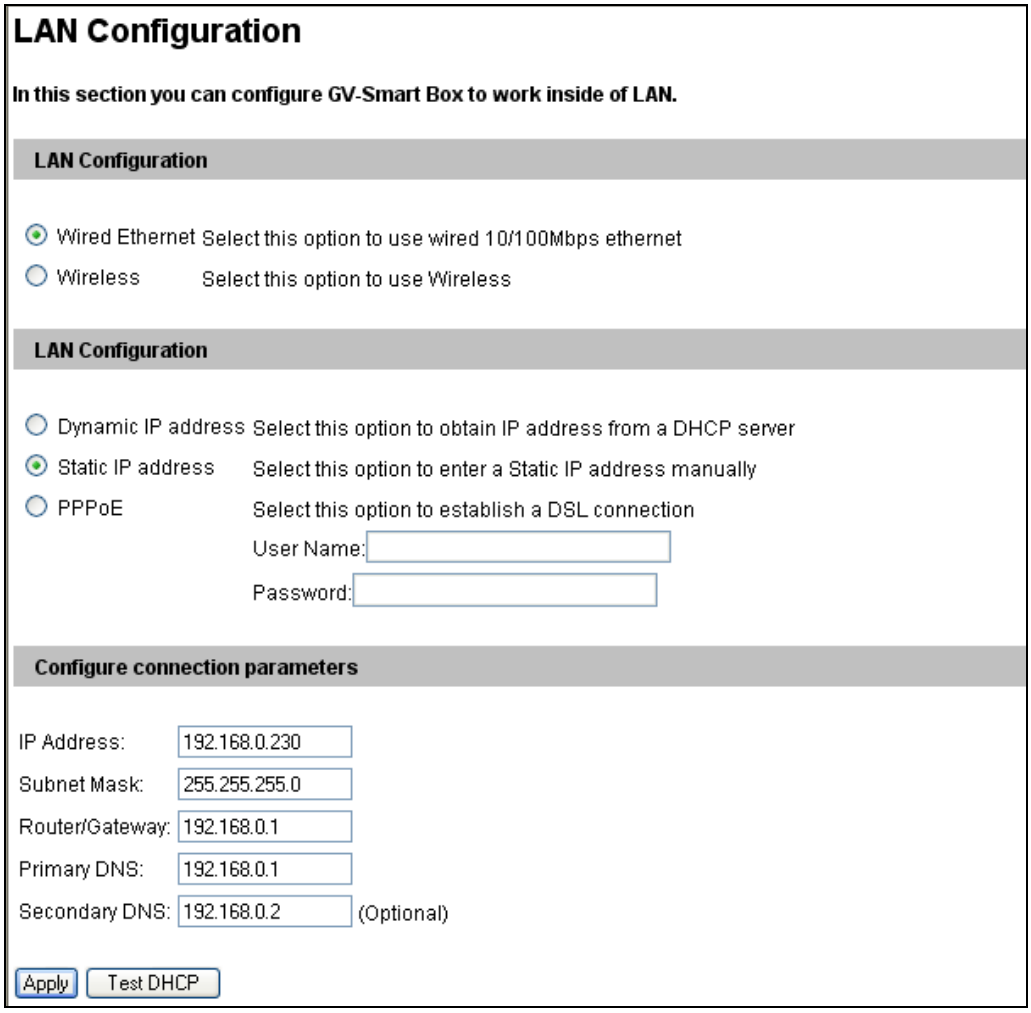

LAN Configuration
In this section you can configure GV-Smart Box to work inside of LAN.
LAN Configuration
Wired Ethernet Select this option to use wired 10/100Mbps ethernet
Wireless Select this option to use Wireless
LAN Configuration
Dynamic IP address Select this option to obtain IP address from a DHCP server
Static IP address Select this option to enter a Static IP address manually
PPPoE Select this option to establish a DSL connection
User Name:
Password:
Configure connection parameters
IP Address: 192.168.0.230
Subnet Mask: 255.255.255.0
Router/Gateway: 192.168.0.1
Primary DNS: 192.168.0.1
Secondary DNS: 192.168.0.2 (Optional)
Apply
Test DHCP

Figure 4-15

[LAN Configuration]

According to the network environment, select **Wired** or **Wireless**.

Before enabling **Wireless**, set up **WLAN Configuration** first. For details, see *4.5.2 Wireless-Client Mode.*

[LAN Configuration]

- **Dynamic IP address:** The network environment has a DHCP server. This option should only be enabled if you know which IP address the GV-Smart Box will get from the DHCP server, or you have obtained a domain name from the DDNS service provider.
- **Static IP address:** Assign a static IP or fixed IP to the GV-Smart Box. Type TCP/IP and DNS parameters of the unit in the **Configure connection parameters** section.
- **PPPoE:** The Network environment is xDSL connection. Type the Username and Password provided by ISP to establish the connection. If you use the xDSL connection with dynamic IP addresses, you must use the DDNS function to obtain a domain name linked to the changing IP address of the GV-Smart Box first.

[Configure connection parameters] Type the IP address, Subnet Mask, Router/Gateway, Primary DNS server and Secondary DNS server of the GV-Smart Box.

Parameters	Default
IP address	192.168.0.230
Subnet Mask	255.255.255.0
Router/Gateway	192.168.0.1
Primary DNS server	192.168.0.1
Secondary DNS server	192.168.0.2

For details on the DDNS function (Dynamic DNS Server)*, see 4.5.4 Advanced TCP/IP.*

4.5.2 Wireless-Client Mode

To use the wireless function, a GV-WiFi USB Adaptor or other compatible wireless LAN USB adaptor is required. For supported wireless LAN adaptors, see *Appendix B*.

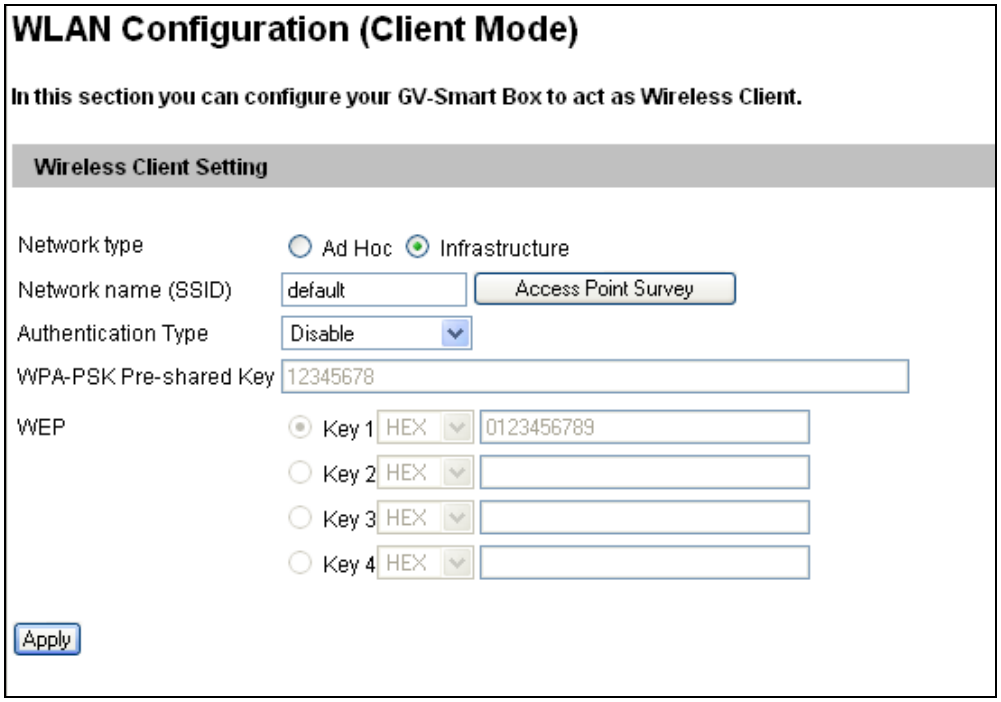


Figure 4-32

- **Network type:** Select the network mode **Ad Hoc** or **Infrastructure**.
  - **Infrastructure:** Via the Access Point to connect to the Internet. This mode further gives wireless access to the Internet or data sharing under a previously wired environment.
  - **Ad-Hoc:** A Peer-to-Peer mode. This mode connects to other computer with the WLAN card, and does not need the Access Point to connect to each other.
- **Network name (SSID):** The SSID (Service Set Identify) is a unique name that identifies a particular wireless network. Type SSID of the Wireless LAN group or Access Point you are going to connect to.
  - **Access Point Survey:** Click this button to search all the available Access Points (Infrastructure mode) and wireless stations (AD-Hoc mode) within the range of your WLAN card.
- **Authentication Type:** Select one of these network authentications and data encryptions: **Disable**, **WEP**, **WPAPSK-TKIP**, **WPAPSK-AES**, **WPA2PSK-TKIP** or **WPA2PSK-AES**.
  - **Disabled:** No authentication is needed within the wireless network.

- **WEP (Wired Equivalent Privacy):** A type of data encryption. Type up to four WEP Keys in HEX or ASCII format. Note that if you use HEX format, only digits 0-9 and letters A-F, a-f are valid.
- **WPAPSK-TKIP and WPA2PSK-TKIP:** Type WPA-PSK (Pre-Shared Key) for data encryption.
- **WPAPSK-AES** and **WPA2PSK-AES:** Type WPA-PSK (Pre-Shared Key) for data **encryption**.

Note: Your encryption settings must match those used by the Access Points or wireless stations with which you want to associate.

4.5.3 UMTS

UMTS stands for Universal Mobile Telephone System. UMTS is a third-generation (3G) broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to 2 megabits per second. UMTS offers a consistent set of services to mobile computer and phone users, no matter where they are located in the world.

After a mobile broadband device (supporting UMTS, HSDPA, etc.) is attached to the USB port on the front panel and the UMTS function is enabled, the GV-Smart Box can have wireless broadband access. For supported mobile broadband devices, see *Appendix*.

The Virtual Private Network (VPN) over a UMTS connection is also configurable in the setting page.

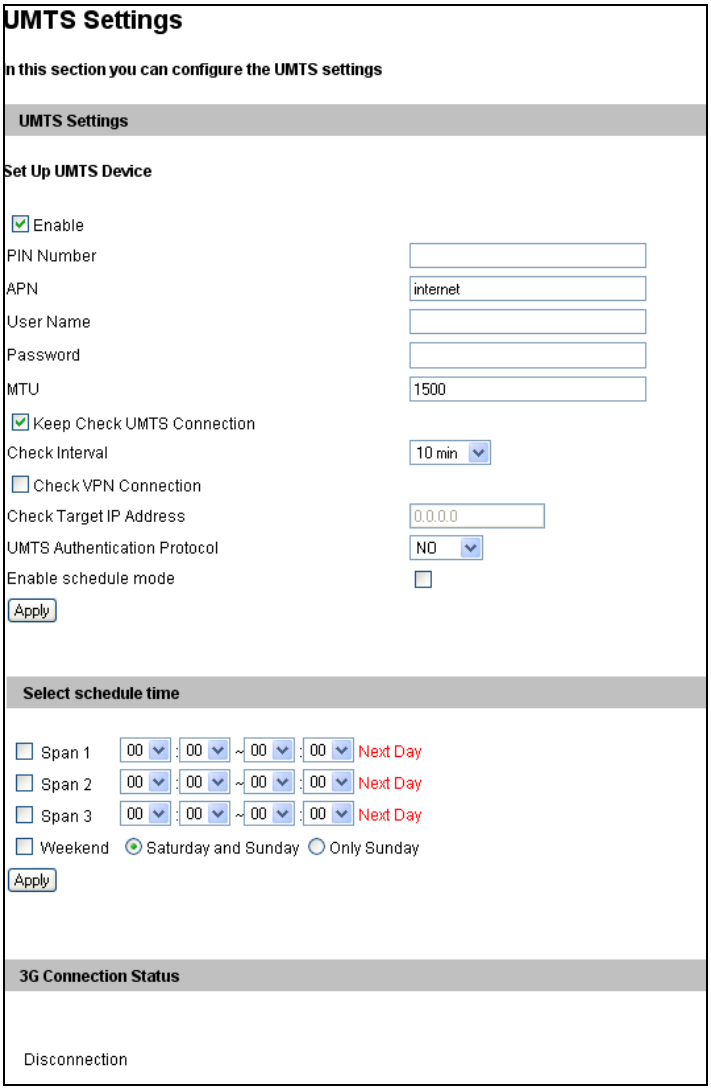


Figure 4-16

[UMTS Settings]

- **PIN Number:** Type the PIN number that is provided by your network operator.
- **APN:** Type the Access Point Name that is provided by your network operator.
- **Username:** Type a valid username to enable the UMTS service from your network operator.
- **Password:** Type a valid password to enable the UMTS service from your network operator.
- **MTU:** Type the Maximum Transfer Unit. The default value is 1500.
- **Keep Check UMTS Connection:** Select this option to check the UMTS connection status and use the drop-down list to specify the desired time length for check frequency.
- **Check VPN Connection:** Select this option to enable the VPN (Virtual Private Network) connection. Type the target IP address in the **Check Target IP Address** field.
- **Enable Schedule Mode:** Starts the UMTS connection automatically based on the schedule you set in the **Select Schedule Time** section. Refer to *4.4 Schedule* for the same settings.
- **UMTS Authentication Protocol:** Use the drop-down list to select the UMTS Authentication Protocol provided by your network operator.

[3G Connection Status] Indicates the connection status of UMTS or VPN.

4.5.4 Advanced TCP/IP

This section introduces the advanced TCP/IP settings, including DDNS Server, HTTP port, HTTPS port, streaming port and UPnP.

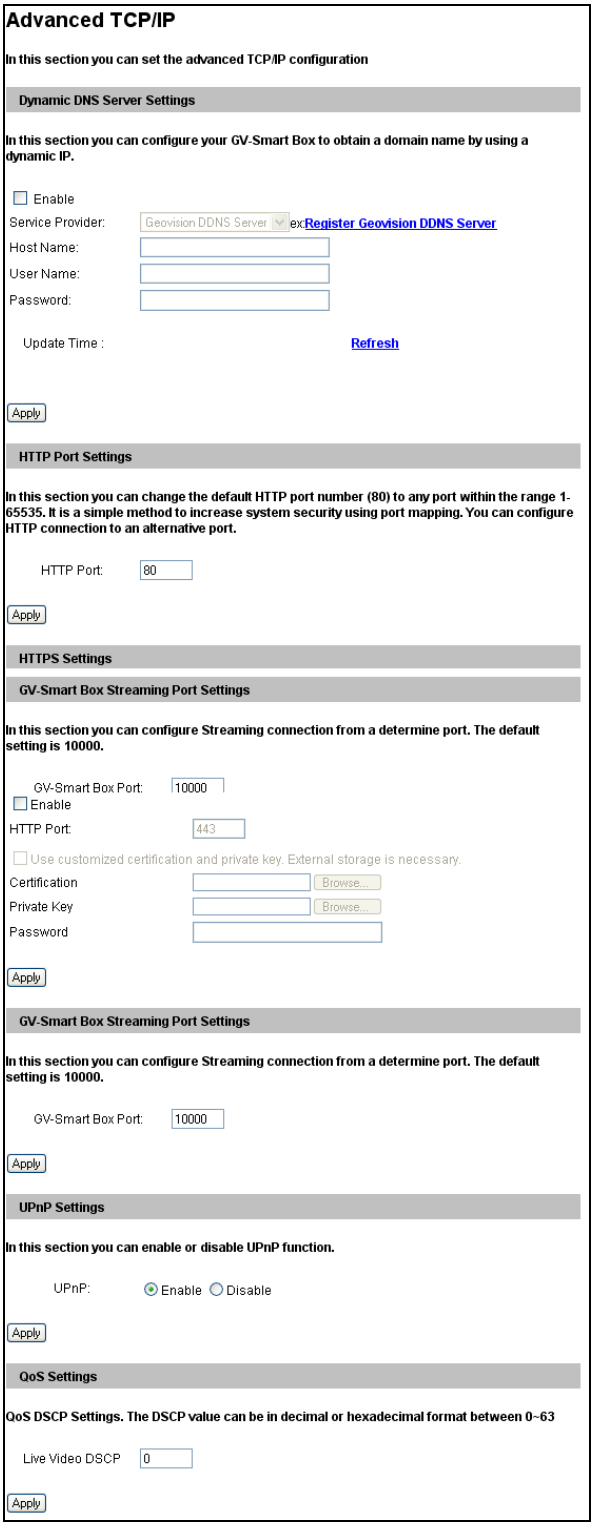

Advanced TCP/IP
In this section you can set the advanced TCP/IP configuration
Dynamic DNS Server Settings
In this section you can configure your GV-Smart Box to obtain a domain name by using a dynamic IP.
Enable
Service Provider:
Geovision DDNS Server
ex:Register Geovision DDNS Server
Host Name:
User Name:
Password:
Update Time :
Refresh
Apply
HTTP Port Settings
In this section you can change the default HTTP port number (80) to any port within the range 1-65535. It is a simple method to increase system security using port mapping. You can configure HTTP connection to an alternative port.
HTTP Port:
80
Apply
HTTPS Settings
GV-Smart Box Streaming Port Settings
In this section you can configure Streaming connection from a determine port. The default setting is 10000.
GV-Smart Box Port:
10000
Enable
HTTP Port:
443
Use customized certification and private key. External storage is necessary.
Certification
Browse...
Private Key
Browse...
Password
Apply
GV-Smart Box Streaming Port Settings
In this section you can configure Streaming connection from a determine port. The default setting is 10000.
GV-Smart Box Port:
10000
Apply
UPnP Settings
In this section you can enable or disable UPnP function.
UPnP:
Enable
Disable
Apply
QoS Settings
QoS DSCP Settings. The DSCP value can be in decimal or hexadecimal format between 0~63
Live Video DSCP
0
Apply

Figure 4-17

[Dynamic DNS Server Settings] DDNS (Dynamic Domain Name System) provides a convenient way of accessing the GV-Smart Box when using a dynamic IP. DDNS assigns a domain name to the GV-Smart Box, so that the Administrator does not need to go through the trouble of checking if the IP address assigned by DHCP Server or ISP (in xDSL connection) has changed.

Before enabling the DDNS function, the Administrator should apply for a host name from the DDNS service provider's website. There are 2 providers listed in the GV-Smart Box: GeoVision DDNS Server and DynDNS.org.

To enable the DDNS function:

1. **Enable:** Enable the DDNS function.
2. **Service Provider:** Select the DDNS service provider you have registered with.
3. **Host Name:** Type the host name used to link to the GV-Smart Box. For the users of GeoVision DDNS Server, it is unnecessary to enter the host name. The system will detect the host name automatically.
4. **User Name:** Type the user name used to enable the service from the DDNS.
5. **Password:** Type the password used to enable the service from the DDNS.
6. Click **Apply**. The Update Time from the DDNS will be displayed.

[HTTP Port Settings]

The HTTP port enables connecting the GV-Smart Box to the Web. For security integration, the Administrator can hide the server from the general HTTP port by changing the default HTTP port of 80 to a different port number within the range of 1024 through 65535.

[HTTPS Settings]

By enabling the Hypertext Transfer Protocol Secure (HTTPS) settings, you can access the camera through a secure protocol. You can use self-generated Certificate and Private Key or the ones verified by the SSL authority. Click **Browse** to locate the Certificate and Private Key files and type the password if the .pem files are protected by password. Click **Apply**. The Web interface will be restarted and you will need to log in again.

Note:

1. The .pem file format is supported by Certificate and Private Key.
2. To use a customized certificate and private key, you must have a SD card inserted in the GV-Smart Box.

[GV-Smart Box Streaming Port Settings]

The VSS port enables connecting the GV-Smart Box to the GV-System. The default setting is 10000.

[UPnP Settings]

UPnP (Universal Plug & Play) is a networking architecture that provides compatibility among networking equipment, software and peripherals of the 400 vendors that are part of the Universal Plug and Play Forum. It means that they are listed in the network devices table for the operating system (such as Windows XP) supported by this function. Enabling this function, you can connect to the GV-Smart Box directly by clicking on the GV-Smart Box listed in the network devices table.

[QoS Settings]

The Quality of Service (QoS) is a bandwidth control mechanism that guarantees delay-sensitive data flows such as voice and video streams, obtain a certain amount of bandwidth to keep the streaming smooth.

To apply QoS to the GV-Smart Box, all network routers must support QoS and QoS must be enabled on these devices. To enable the QoS on the GV-Smart Box, enter a Differentiated Services Code Point (DSCP) value. This value is a field in an IP packet that enables different levels of services for the network traffic. When the video stream from the GV-Smart Box reaches a router, the DSCP value will tell the router what service level to be applied, e.g. the bandwidth amount. This value ranges from 0 to 63 in decimal format. The default value is 0, meaning QoS is disabled.

4.5.5 IP Filter Setting

The Administrator can set IP filtering to restrict access to the GV-Smart Box.

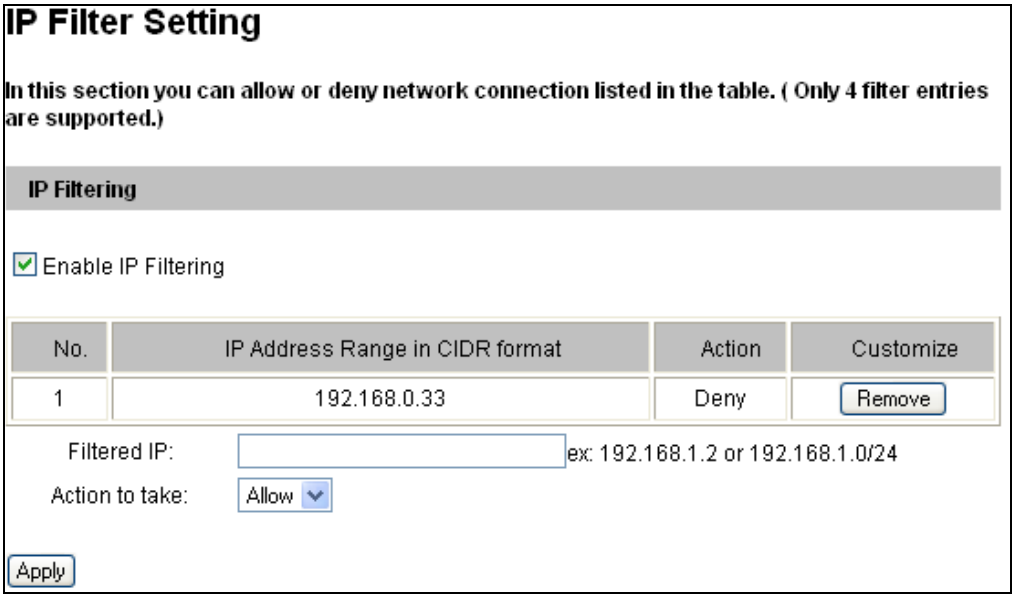


Figure 4-18

To enable the IP Filter function:

1. **Enable IP Filtering:** Enable the IP Filtering function.
2. **Filtered IP:** Type the IP address you want to allow or deny.
3. **Action to take:** Select the action of **Allow** or **Deny** to be taken for the IP address you have specified.
4. Click **Apply**.

4.5.6 SNMP Setting

The Simple Network Management Protocol (SNMP) allows you to monitor the status of the camera through SNMP network management software.

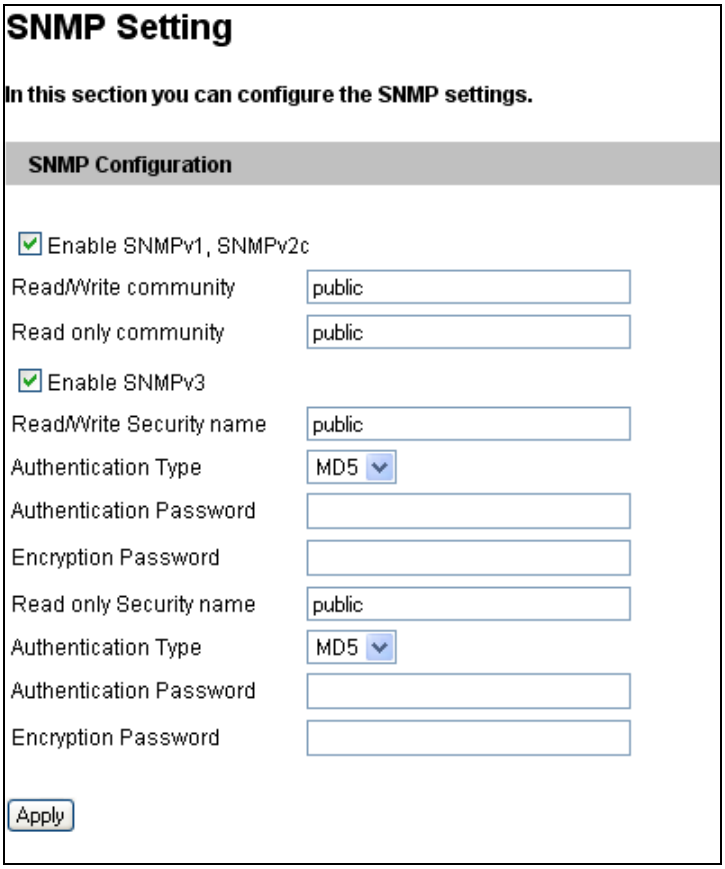


Figure 4-19

1. Select **Enable SNMPv1 SNMPv2c** to enable the function.
2. To enable access to **Read/Write community**, type a community string. This will serve as a password to allow read and write access to the camera from the SNMP software.
3. To enable **Read only community**, type a community string to allow read-only access to the camera from the SNMP software.
4. For a more secured connection, select **Enable SNMPv3** to enable SNMP version 3.
5. To enable access to **SNMPv3 Read/write community,** type a community string.
6. Select an **Authentication Type** to use for SNMP requests.
7. Type the A**uthentication Password** and **Encryption Password**. You will need to type these passwords in the SNMP software to be able to access the camera.
8. To enable access to **SNMPv3 Read only community**, follow steps 5 to 7.
9. Click **Apply** to save the settings.

4.6 Management

The **Management** section includes the settings of date and time, SD card and user account. Also you can view the firmware version and execute certain system operations.

4.6.1 Date & Time Setting

You can set up the date and time appearing in the image's caption.

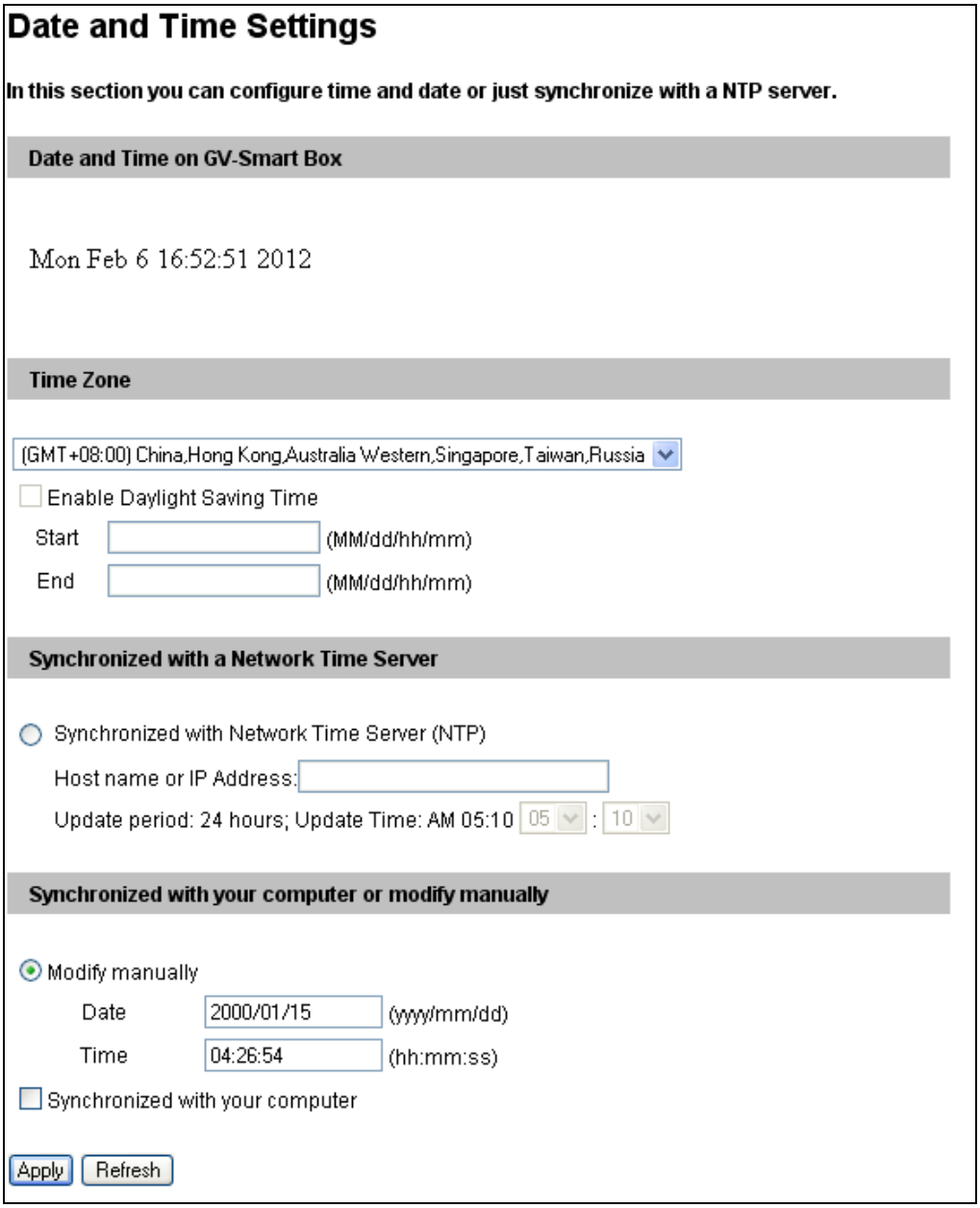


Figure 4-19

[Date & Time on GV-Smart Box] Display the current date and time on the GV-Smart Box.

[Time Zone] Set the time zone for local settings. Select **Enable Daylight Saving Time** to automatically adjust the GV-Smart Box for daylight saving time. Type the Start Time and End Time to enable the daylight saving function.

[Synchronized with a Network Time Server] Use the NTP server to automatically update the date and time of the GV-Smart Box every 24 hours. You can type the host name or IP setting of the timeserver of interest, and define the update time.

[Synchronized with your computer or modify manually] By default, the option of manually changing the date and time is enabled. The default date is 2000/01/15, while the default time is 04:26:54. You can also synchronize the date and time of the GV-Smart Box with the local computer.

4.6.2 Storage Settings

The GV-Smart Box V1 has one Mini SD card slot, while the GV-Smart Box V3 has one Micro SD card slot. You can store the counting results or images to the Mini / Micro SD card. The image is stored in the JPEG compressed format.

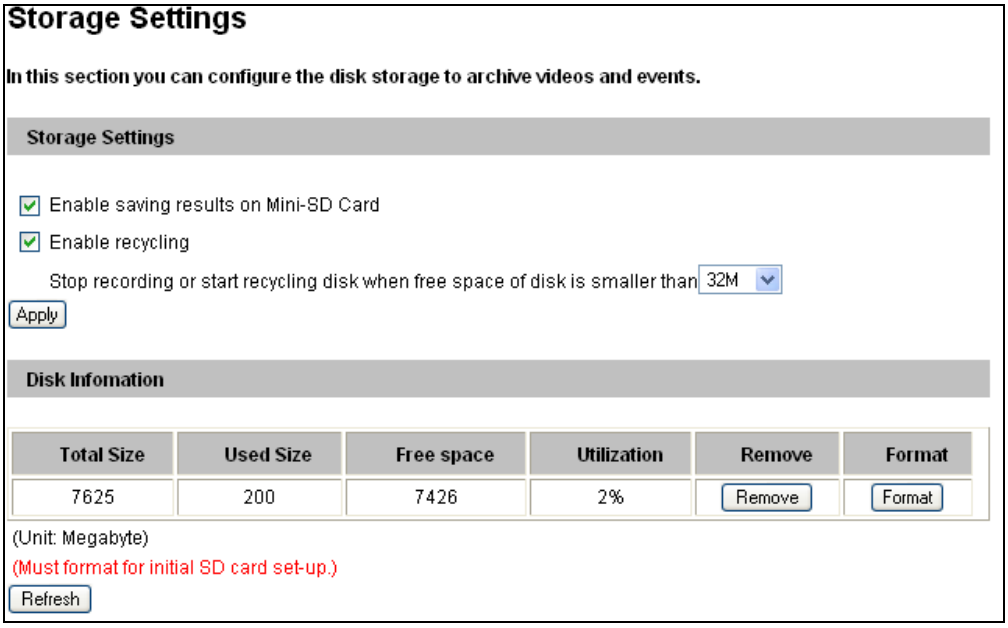


Figure 4-20

To add a Mini / Micro SD card:

1. Insert a Mini / Micro SD card to the Mini / Micro SD card slot.
2. Click the **Refresh** button to detect the Mini / Micro SD card. The total size, used size, free space and utilization of the Mini / Micro SD card will be displayed. Note that it may take several seconds for your Web browser to update the information from the Mini / Micro SD card.
3. If you like to format the Mini / Micro SD card or erase all data stored on it, click the **Format** button.

To remove a Mini / Micro SD card:

1. Click the **Remove** button.
2. When you are prompted to confirm the action, click **Yes**. The page will be refreshed and the partition information will be cleaned.
3. Remove the Mini / Micro SD card from the Mini / Micro SD card slot.

Note: The captured images may be lost if you do not remove the Mini / Micro SD card properly.

[Storage Settings]

- **Enable saving results on SD Card:** Enable this option to save the counting data and images onto the Mini / Micro SD card.
- **Enable recycling:** If this option is checked, the system will overwrite the oldest stored files when the space of the Mini / Micro SD card is lower than the specified space. If this option is not checked, the system will stop recording when the specified space is reached.

4.6.3 User Account

The GV-Smart Box has two types of password protection: Guest password for restricting unwanted users from accessing the GV-Smart Box, and Administrator password for restricting who can enter privileged commands.

Default Guest login name and password are **guest**. Default Administrator login name and password are **admin**.

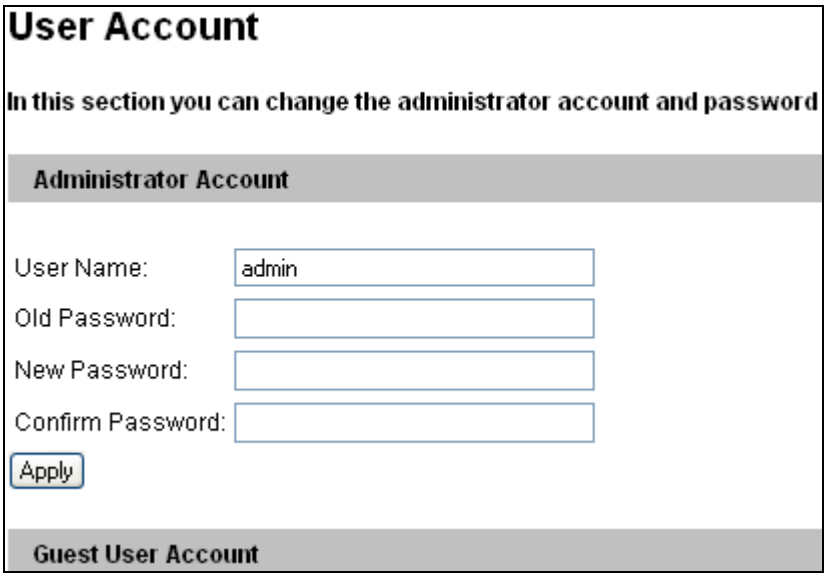


Figure 4-21

4.6.4 Log Information

The log contains dump data that is used by service personnel for analyzing problems.

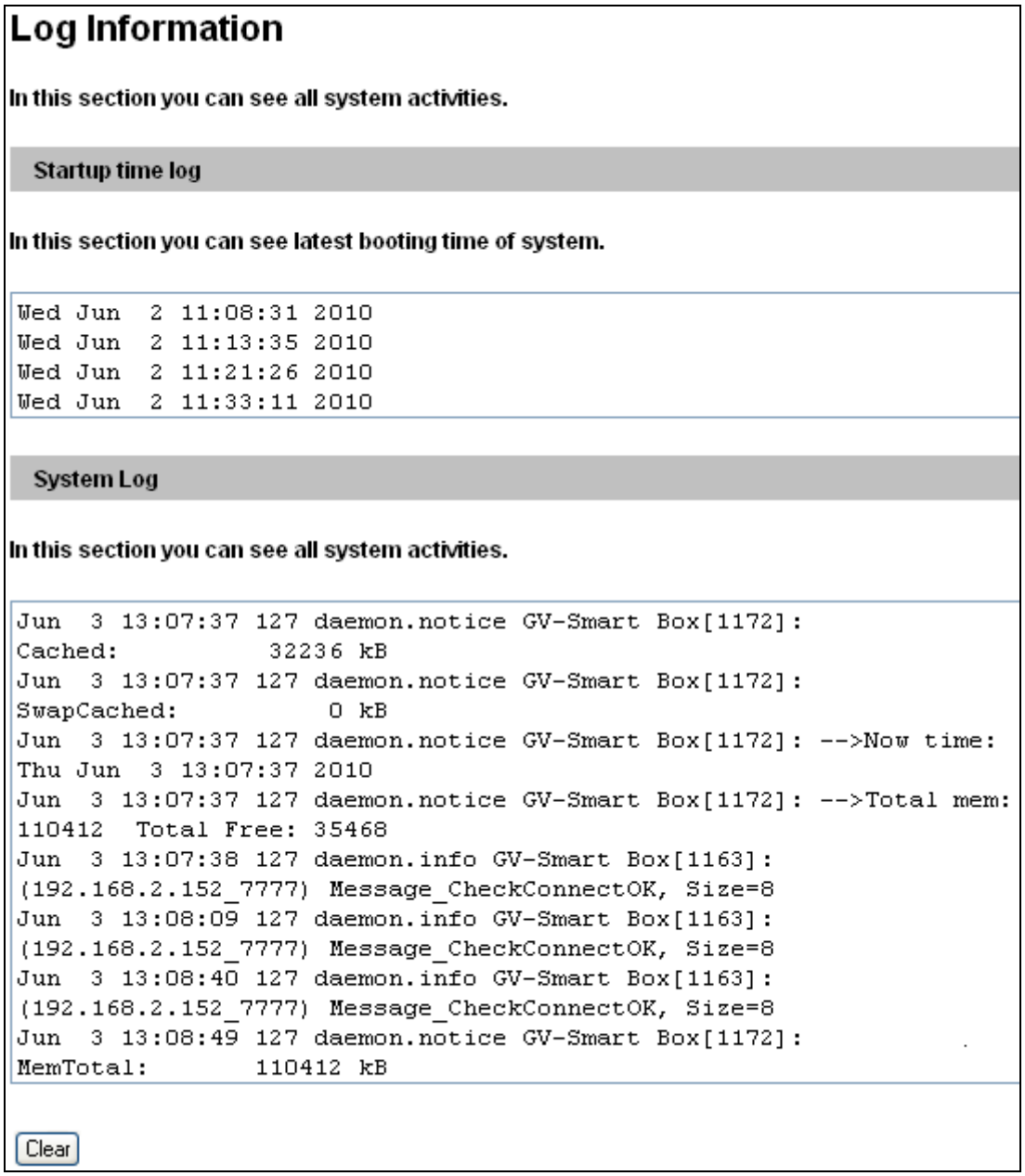

Log Information
In this section you can see all system activities.
Startup time log
In this section you can see latest booting time of system.
Wed Jun 2 11:08:31 2010
Wed Jun 2 11:13:35 2010
Wed Jun 2 11:21:26 2010
Wed Jun 2 11:33:11 2010
System Log
In this section you can see all system activities.
Jun 3 13:07:37 127 daemon.notice GV-Smart Box[1172]:
Cached: 32236 kB
Jun 3 13:07:37 127 daemon.notice GV-Smart Box[1172]:
SwapCached: 0 kB
Jun 3 13:07:37 127 daemon.notice GV-Smart Box[1172]: -->Now time:
Thu Jun 3 13:07:37 2010
Jun 3 13:07:37 127 daemon.notice GV-Smart Box[1172]: -->Total mem:
110412 Total Free: 35468
Jun 3 13:07:38 127 daemon.info GV-Smart Box[1163]:
(192.168.2.152_7777) Message_CheckConnectOK, Size=8
Jun 3 13:08:09 127 daemon.info GV-Smart Box[1163]:
(192.168.2.152_7777) Message_CheckConnectOK, Size=8
Jun 3 13:08:40 127 daemon.info GV-Smart Box[1163]:
(192.168.2.152_7777) Message_CheckConnectOK, Size=8
Jun 3 13:08:49 127 daemon.notice GV-Smart Box[1172]:
MemTotal: 110412 kB
Clear

Figure 4-22

4.6.5 Tools

This section allows you to execute certain system operations and view the firmware version.

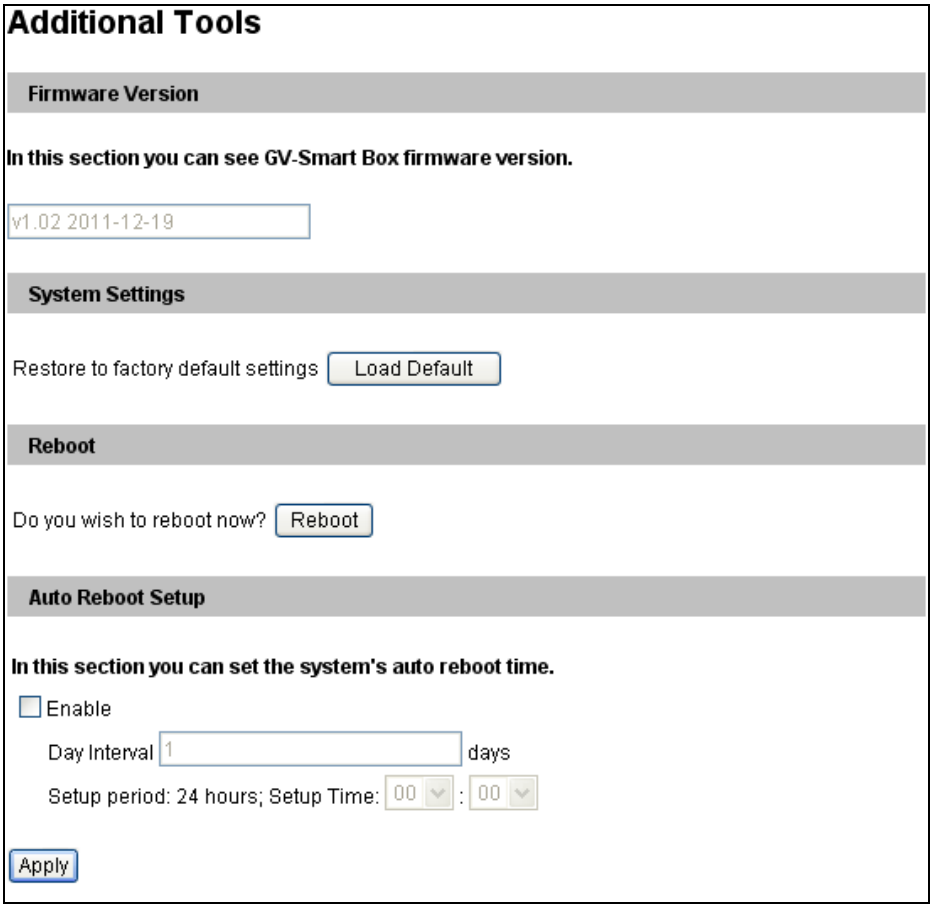


Figure 4-23

[Firmware Version] This section displays the firmware version of the GV-Smart Box.

[System Settings] Clicking the **Load Default** button will restore the GV-Smart Box to factory default settings. The Ready LED on the front panel will turn off. Wait until the Ready LED turns on and then you can re-log in the GV-Smart Box.

Note: After applying default settings, you will need to configure the GV-Smart Box's network settings again.

[Reboot] Clicking the **Reboot** button will make the GV-Smart Box perform software reset. The Ready LED on the front panel will turn off. Wait until the Ready LED turns on and then you can re-log in the GV-Smart Box.

[Auto Reboot Setup] Select **Enable** to activate automatic reboot and specify the time for reboot in the sub fields.

Day Interval: Type the day interval between each reboot.

Reboot Time: Use the drop-down lists to specify the time for automatic reboot.

Chapter 5 Advanced Applications

This chapter introduces more advanced applications.

5.1 Upgrading System Firmware

GeoVision will periodically release updated firmware on the website. The new firmware can be simply loaded into the GV-Smart Box over LAN or by using the IP Device Utility included in the Software DVD.

Important Notes before You Start

Before you start updating the firmware, please read these important notes:

1. While the firmware is being updated,
   A. the power supply must not be interrupted, and
   B. do not unplug the Ethernet cable if the cable is the source of power supply (Power over Ethernet or PoE supported).
2. Do not turn the power off for 5 minutes after the firmware is updated.
3. If you use the IP Device Utility for firmware upgrade, the computer used to upgrade firmware must be under the same IP and subnet sequence of the GV-Smart Box.

WARNING: Interruption of power supply during updating causes not only update failures but also damages to your GV-Smart Box. In this case, please contact your sales representative and send your device back to GeoVision for repair.

5.1.1 Upgrading Firmware over LAN

1. In the Live View window (People Counting or Face Counter), click the **Firmware Upgrade** button. This dialog box appears.

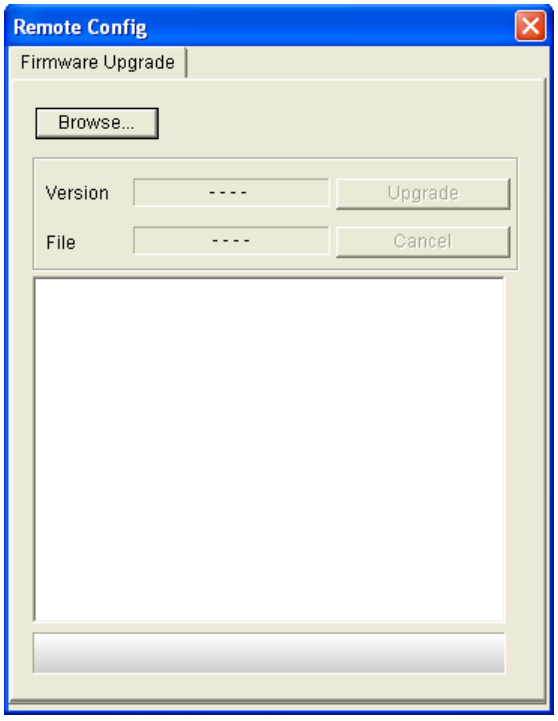


Figure 5-1

2. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
3. Click the **Upgrade** button to begin upgrading.

5.1.2 Upgrading Firmware by Using the Utility

The IP Device Utility provides a direct way to upgrade the firmware to multiple GV-Smart Boxes. Note the computer used to upgrade firmware must be under the same IP and subnet sequence of the GV-Smart Box.

1. Insert the Software DVD, select **IP Device Utility**, and follow the onscreen instructions to install the program.

2. Double-click the **GV IP Device Utility** icon created on your desktop. This dialog box appears.

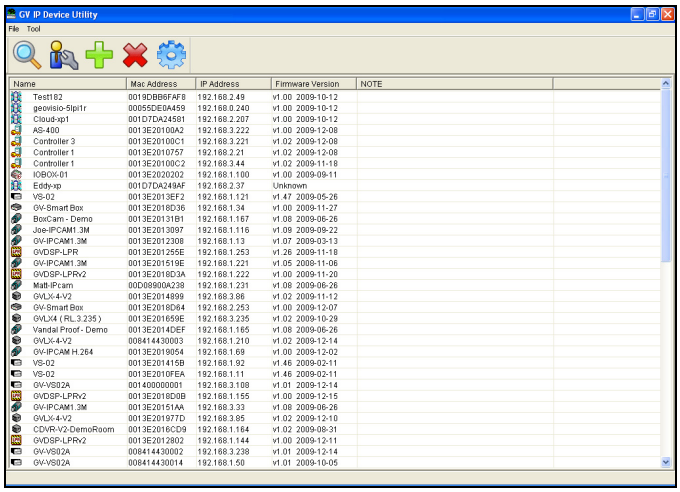


Figure 5-2

3. Double-click one GV-Smart Box in the list. This dialog box appears.

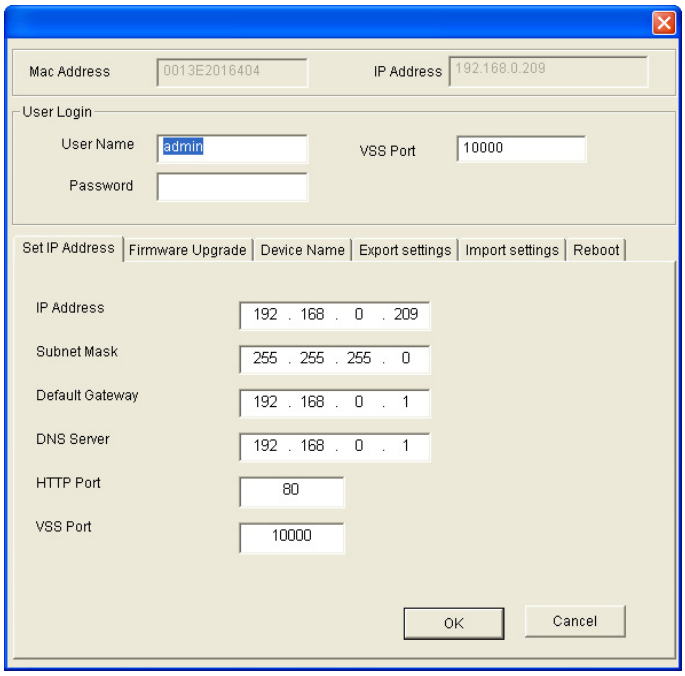


Figure 5-3

4. Click the **Firmware Upgrade** tab. This dialog box appears.

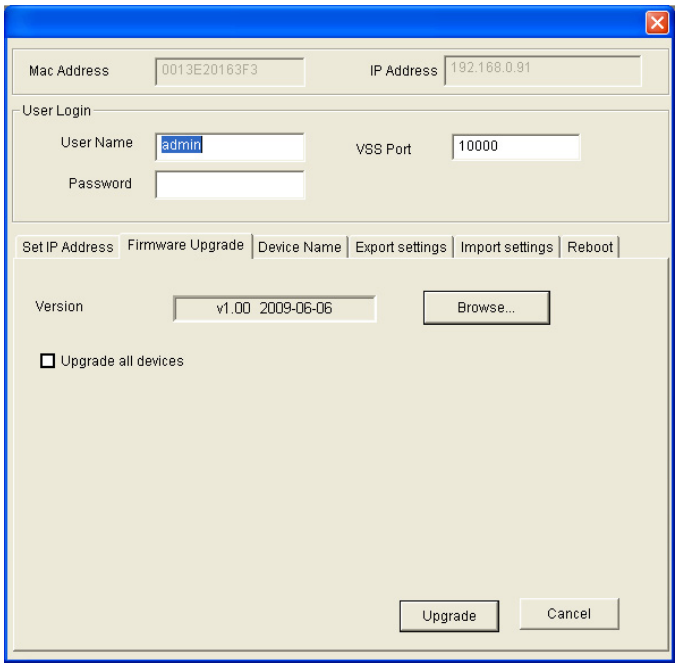


Figure 5-4

5. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
6. If you like to upgrade all the GV-Smart Boxes in the list, select **Upgrade all devices**.
7. Type **Password**, and click **Upgrade** to process the upgrade.

5.2 Restoring to Factory Default Settings

To restore to default settings, use the **Load Default** button on the front panel of GV-Smart Box. See No. 3, Figure 1-2.

1. Unplug and plug the power cable. The Ready LED turns off.
2. Press and hold the **Load Default** button until the Ready LED turns on.
3. Release the **Load Default** button. The process of loading default values is complete, and the GV-Smart Box starts rebooting itself.

Note: Before **Ready LED** is on again, do not unplug the power cable; otherwise the loading of default values will fail.

Chapter 6 The I/O Terminal Block

6.1 I/O Port

GV-Smart Box provides the **I/O Cable with RJ-45 Connector** for the extensible connection to other I/O devices. A RJ-45 connector and a bundle of shielded wires are on the each end of the cable.

Strip the desired wires first, and connect the auxiliary devices with the right wires according to the following pin assignment. Then insert the RJ-45 Connector to the **I/O Port** on GV-Smart Box (No. 4, Figure 1-3).

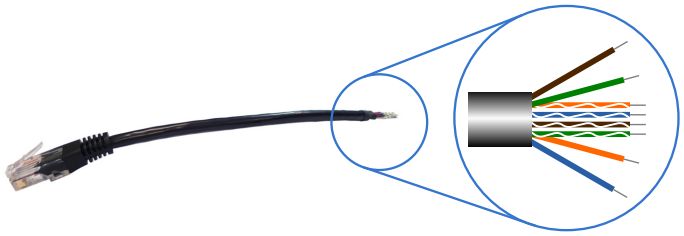


Figure 6-1

Pin Assignment

The table below lists the pin assignment for the shielded wires of the **I/O Cable with RJ-45 Connector**.

Pin	Wire	Function
1	Brown	Digital Out 1
2	White with Brown Stripe	Digital Out 2
3	White with Green Stripe	Ground
4	White with Blue Stripe	Digital In 1
5	Blue	Digital In 2
6	Green	Ground
7	Orange	Wiegand D0
8	White with Orange Stripe	Wiegand D1

Note: The Wiegand interface is NOT functional now.

Relay Output

The relay outputs on the terminal block can only drive a maximum load of 5 volts. Working in conjunction with the GV-Relay V2 module, it can drive heavier loads. Refer to the figure and table below to connect the GV-Relay V2 module to the GV-Smart Box.

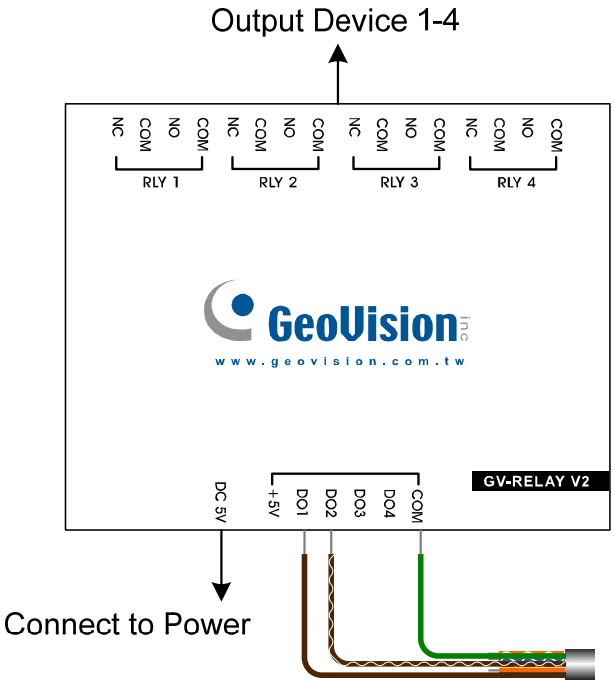


Figure 6-2

GV-Relay V2	Wire
DO 1	Brown
DO 2	White with Brown Stripe
COM	Green

Note: The GV-Relay V2 module is an optional product.

Chapter 7 Integration with other GV Applications

The GV-Smart Box can integrate with GV applications such as GV-Web Report, GV-System and GV-Compact DVR for viewing live images and receiving counting results.

Compatible Versions:

- **GV-Web Report:** V2.0 or later
- **GV-System:** V8.34 or later
- **GV-Compact DVR:** V1.03 or later

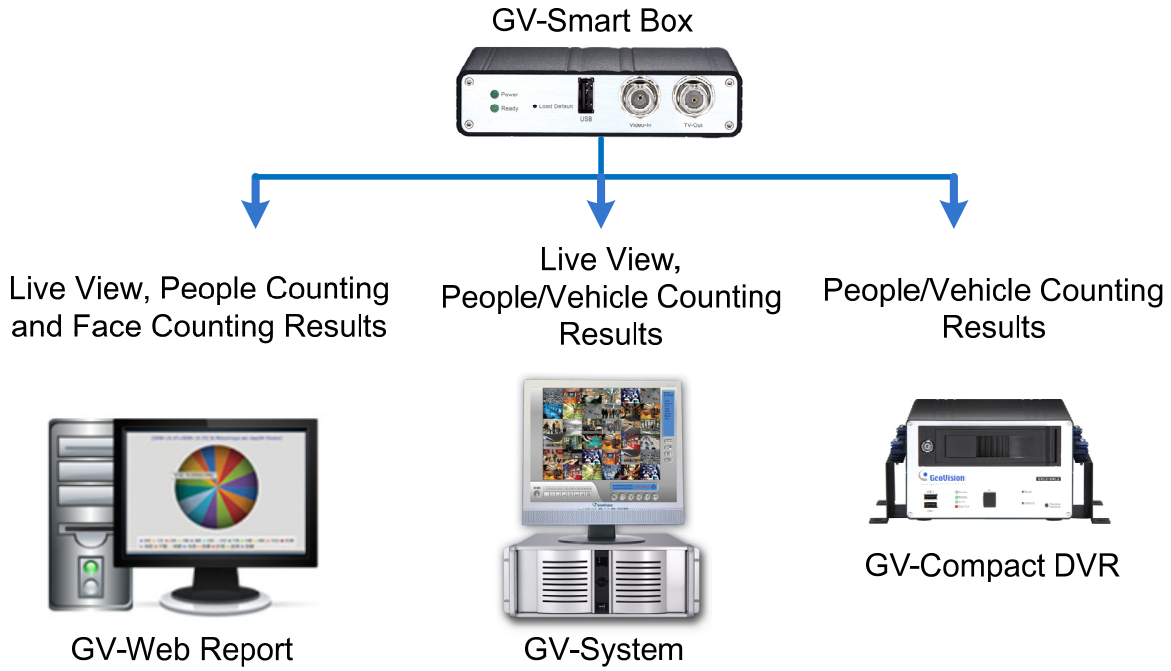


Figure 7-1

7.1 Connecting to GV-Web Report

The integration enables the GV-Web Report to keep track of and analyze people counting, vehicle counting, and face counting results from the GV-Smart Box. To connect to the GV-Web Report, follow the steps below:

1. Enable GV-Web Report function on the Web interface of the GV-Smart Box (Figure 4-9).
2. Type the host name or IP address, port number, user name and password of the GV-Web Report and click **Apply**. The default port number is 30000.
3. On the main screen of GV-Web Report, click **Service** and select **Data Service** to start receiving data from the connected GV-Smart Box.

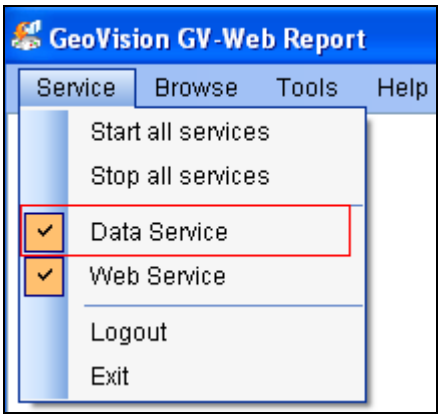


Figure 7-2

4. Select Web Service (Figure 7-2) to enable the Web interface of GV-Web Report.
5. Go to the Web interface of GV-Web Report. You can start accessing the live view, people counting and face counting results from the GV-Smart Box.

7.2 Connecting to GV-System

The integration enables the GV-System to overlay the people or vehicle counting results received from the GV-Smart Box on the live images. To connect to the GV-System, follow the steps below:

1. To configure the GV-Smart Box to connect to the GV-System, select **Video and Motion** and select **GV-Smart Box Settings**. See *4.1.3 GV-Smart Box Settings*.
2. To add the live view images from the GV-Smart Box, go to the main system of GV-System, click the **Configure** button, select **Camera Install** and select **IP Camera Install**. This dialog box appears.

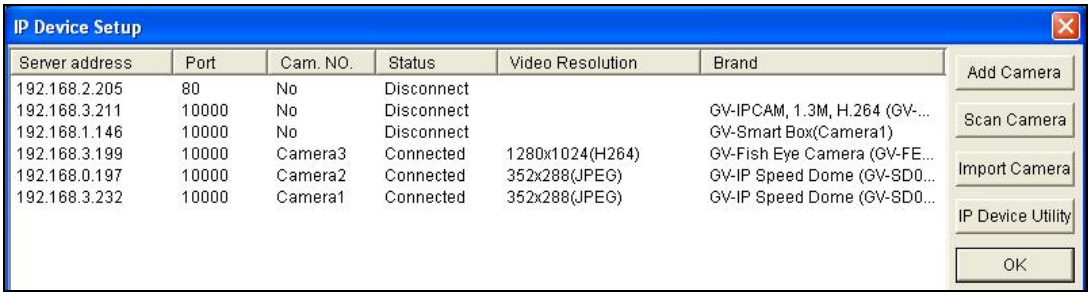


Figure 7-3

3. Click **Add Camera**. This dialog box appears.

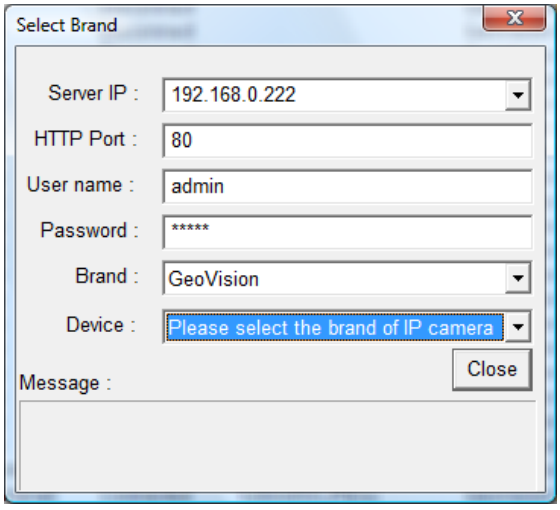


Figure 7-4

4. Type the Server IP, HTTP Port, User name and Password of the GV-Smart Box. Select **GeoVision** from the Brand and **GV-Smart Box** (or **GV-Smart Box Series**) from the Device. This dialog box appears.

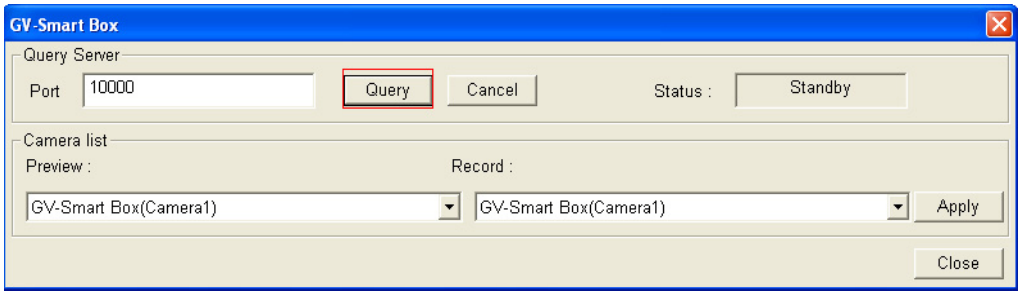


Figure 7-5

5. Click **Query**. After the GV-Smart Box is found, click **Apply**. This dialog box appears.

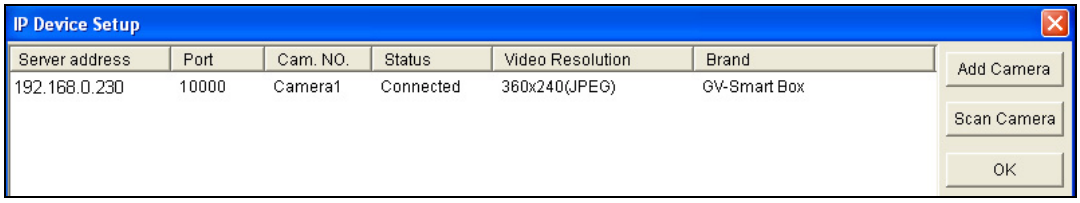


Figure 7-6

6. Right-click the GV-Smart Box to select a display channel.
7. To overlay the counting results on the live images from the GV-Smart Box, go to the main system of GV-System, select **Configure**, select **Accessories**, select **POS Application Setting**, select **POS Device Setup** and click the **New** tab. This dialog box appears.

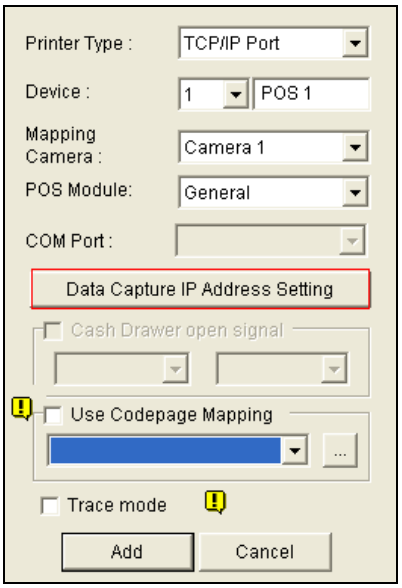


Figure 7-7

8. Select **TCP/IP Port** from the **Printer Type**, select a POS device to display the counting results, select the same camera number you selected in step 6 to map live images and counting results together from the GV-Smart Box, select **General** from the **POS Module** and click **Data Capture IP Address Setting**. This dialog box appears.

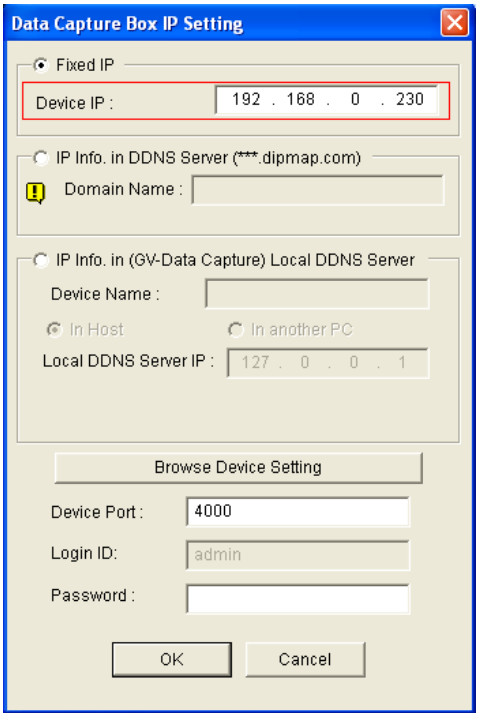


Figure 7-8

9. Type the IP address of the GV-Smart Box. The default value of **Device Port** is 4000. Click **OK**. The counting results are now displayed on the specified camera channel.
10. To view the counting results displayed on the POS Live View window, go to the main system of the GV-System, select **View Log** and select **POS Live View**.

Main system POS Live View

Figure 7-9

7.3 Connecting to GV-Compact DVR

The integration enables the GV-Compact DVR to overlay the people or vehicle counting results from the GV-Smart Box on the live images of GV-Compact DVR. To connect to the GV-Compact DVR, follow the steps below:

Note: You can not access live images from the GV-Smart Box in the integration with the GV-Compact DVR.

---

1. Enable GV-Compact DVR Settings on the Web interface of GV-Smart Box (Figure 4-8).
2. Open the OSD menu of the GV-Compact DVR, select **ADVANCED**, select **DISPLAY SETTINGS**, select **INFO DISPLAY SETTING** and select **GV-SMART BOX INFO**. This dialog box appears.

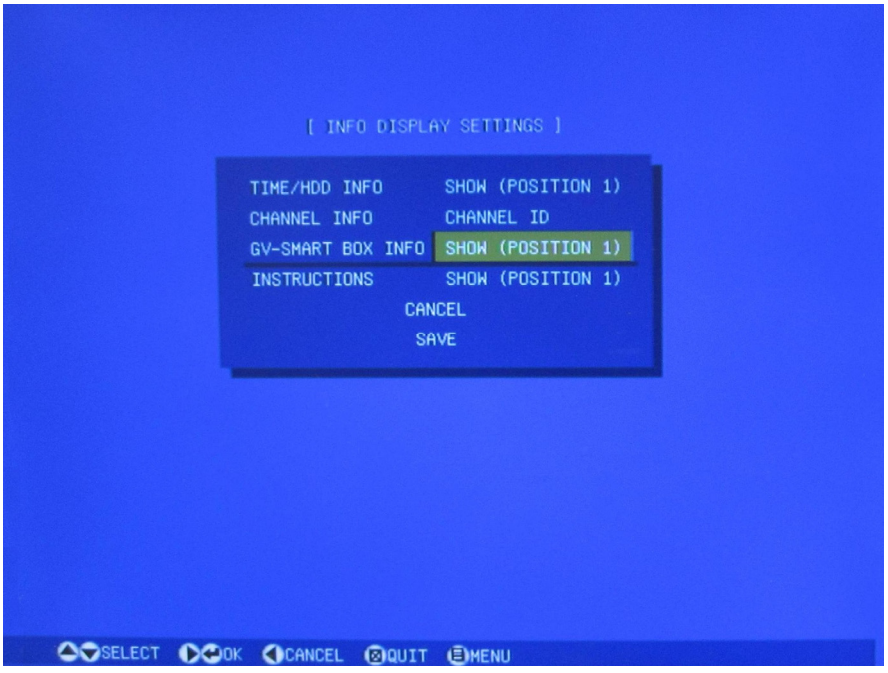


Figure 7-10

3. Select a position for the recognition results to appear on the live view. **POSITION 1** refers to the area below the camera name. **POSITION 2** refers to the top of the live image. **POSITION 3** refers to the area above camera name. **HIDE** refers to hiding the text on the live image.

Specifications

		GV-Smart Box V1	GV-Smart Box V3
Video Compression		JPEG	
Video Resolution		CIF	
Frame Rate	**NTSC**	15	
	PAL	12	
Connectors	**Video**	1 input (BNC port)	
	Ethernet	RJ-45, 10 / 100 Mbps	
	USB	1 USB 2.0 (for UMTS or WiFi)	
	TV-Out	1 output (BNC port)	
	Local Storage	Mini-SD/SDHC memory card slot (for Class 6 card or above)	Micro-SD/SDHC memory card slot (for Class 6 card or above)
	I/O Port	2 sensor inputs, 2 alarm outputs	
Protocol		HTTP, HTTPS, TCP, DHCP, NTP, UPnP, DynDNS, QoS (DSCP), SNMP	
Operation Temperature		-20°C ~ 60°C / -4°F ~ 140°F	-20°C ~ 55°C / -4°F ~ 131°F
Dimensions (L x W x H)		123 x 106 x 25 mm / 4.84 x 4.17 x 0.98 in	
Power		DC 12V, 1A, 50~60 Hz	
Weight		0.345 kg / 0.76 lbs	

All specifications are subject to change without notice.

Appendix

A. Supported Mobile Broadband Device

Vendor	Model
HUAWEI	E169, E220, E1692, E1750, EC169C USB Modem (HSDPA/UMTS/EDGE/GPRS/GSM)
Verizon	U760 USB Modem (EVDO)
Vodafone	K3565-Rev2
Novatel	MC950D (HSDPA/UMTS/EDGE/GPRS/GSM)

B. Supported Wireless LAN USB Adapter

Vendor	Model
D-Link	DWA-140 (H/W version B1), DWL-G122 (version C1)
EDIMAX	EW-7318Ug, EW-7718Un
Linksys	WUSB54GC
Pegatron	WL-166N11
Note: Linksys WUSB54GC ver. 3 is not supported.	